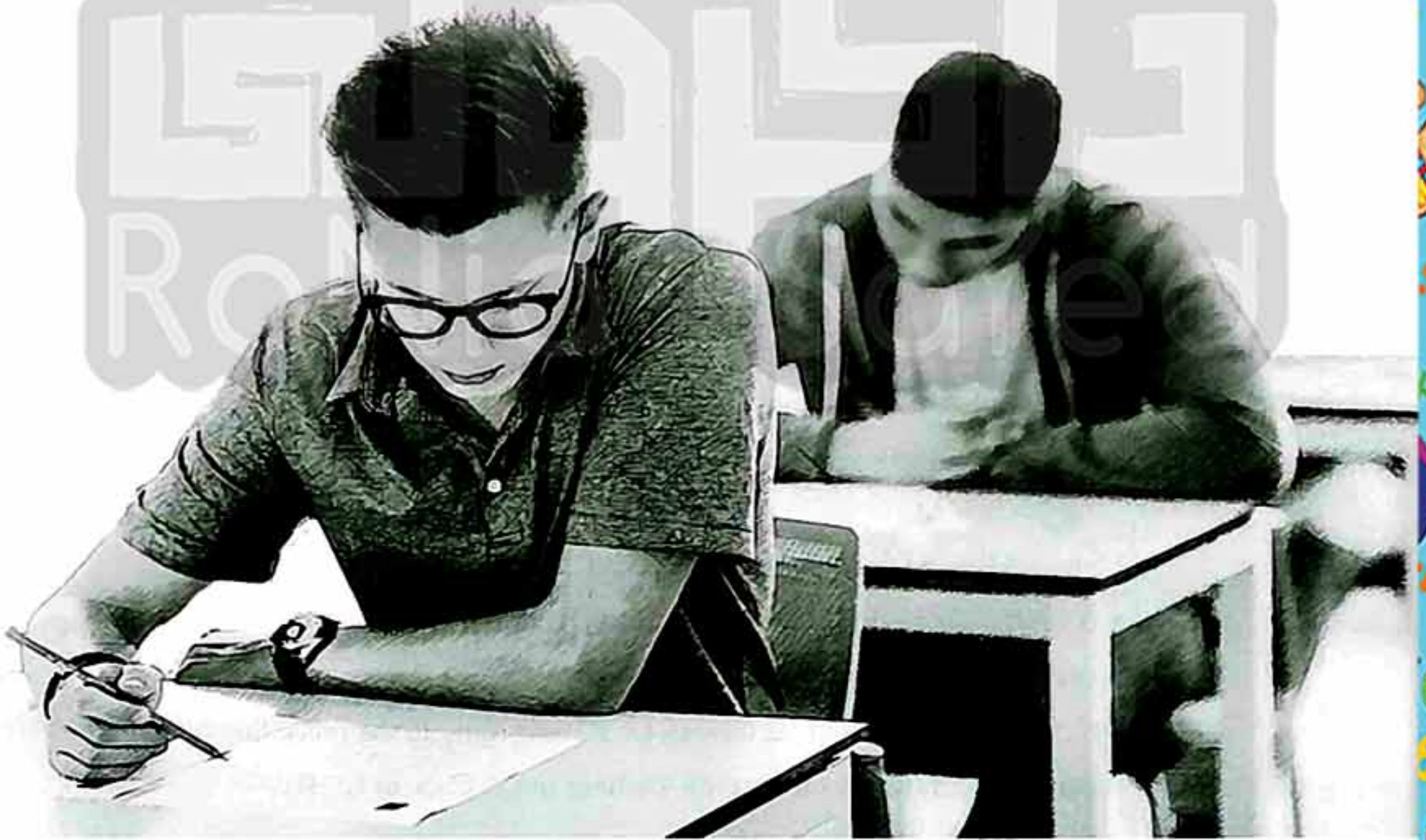


# Final Examinations

on Geometry



## Model Examinations of the School Book



## on Geometry

## Model 1

Answer the following questions :

## 1 Complete the following :

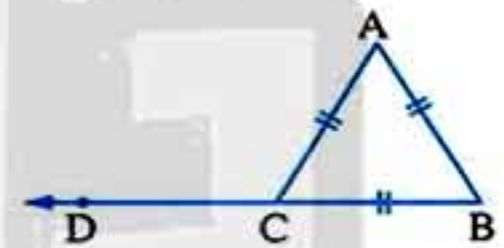
- 1 The longest side in the right-angled triangle is .....
- 2 If the lengths of two sides in a triangle are 2 cm. and 7 cm. , then :  
..... < the length of the third side < .....
- 3 If the measures of two angles in a triangle are different , then the greater in measure of them is opposite to .....
- 4 If the length of the median drawn from a vertex of a triangle equals half the opposite side to this vertex in length , then .....
- 5 If the measure of an angle in the isosceles triangle equals  $60^\circ$  , then the triangle is .....

## 2 Choose the correct answer from those given :

## 1 In the opposite figure :

$\triangle ABC$  is equilateral , then  $m(\angle ACD) = \dots\dots\dots$

- (a)  $45^\circ$  (b)  $60^\circ$   
(c)  $120^\circ$  (d)  $135^\circ$

2 In  $\triangle ABC$  which is right-angled at B , if  $AC = 20$  cm. , then the length of the median of the triangle drawn from B equals .....

- (a) 10 cm. (b) 8 cm. (c) 6 cm. (d) 5 cm.

3 XYZ is a triangle in which :  $m(\angle Z) = 70^\circ$  and  $m(\angle Y) = 60^\circ$  , then  $YZ \dots\dots\dots XY$ 

- (a) > (b) < (c) = (d) twice

## 4 The lengths which can be lengths of sides of a triangle are .....

- (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7

5 The triangle in which the measures of two angles of it are  $42^\circ$  and  $69^\circ$  is .....

- (a) an isosceles triangle. (b) an equilateral triangle.  
(c) a scalene triangle. (d) a right-angled triangle.

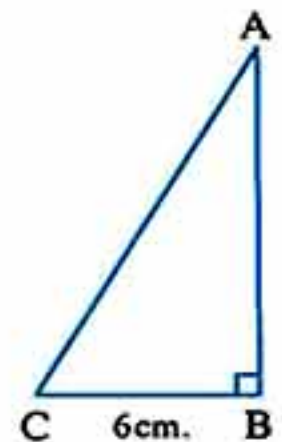
## 6 In the opposite figure :

$m(\angle C) = 2 m(\angle A)$

,  $BC = 6$  cm.

, then  $AC = \dots\dots\dots$  cm.

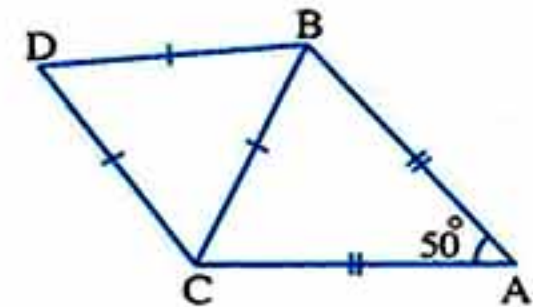
- (a) 3 (b) 6  
(c) 9 (d) 12



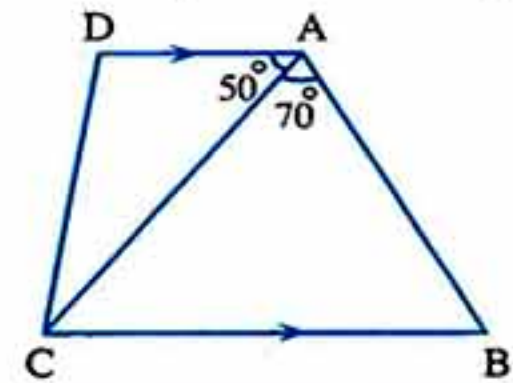
## Geometry

3 [a] Complete : ABC is a triangle in which  $AB > AC$  , then  $m(\angle C) \dots\dots\dots m(\angle B)$

[b] In the opposite figure :  
 $m(\angle A) = 50^\circ$  ,  $AB = AC$   
 and  $\triangle DBC$  is equilateral  
 Find :  $m(\angle ABD)$

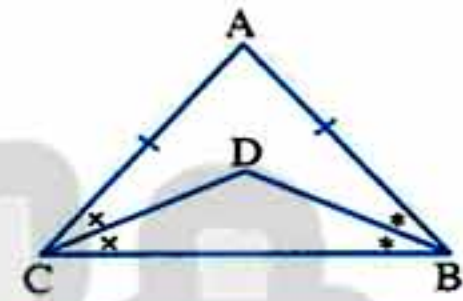


[c] In the opposite figure :  
 $\overline{AD} \parallel \overline{BC}$   
 $m(\angle BAC) = 70^\circ$   
 and  $m(\angle DAC) = 50^\circ$   
 Prove that :  $BC > AC$



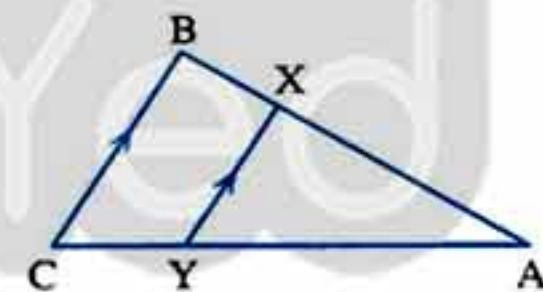
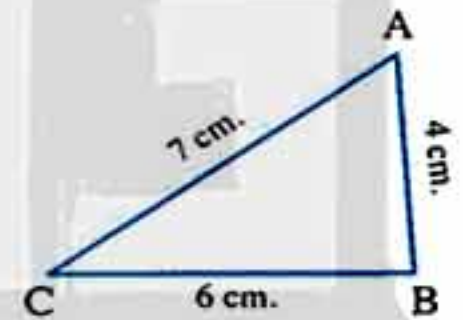
4 [a] Prove that : The two base angles of the isosceles triangle are congruent.

[b] In the opposite figure :  
 $AB = AC$  ,  $\overline{BD}$  bisects  $\angle B$   
 and  $\overline{CD}$  bisects  $\angle C$   
 Prove that :  $\triangle DBC$  is isosceles.



5 [a] In the opposite figure :  
 Arrange the angles  
 of  $\triangle ABC$  descendingly  
 due to their measures

[b] In the opposite figure :  
 $AB > BC$  ,  $\overline{XY} \parallel \overline{BC}$   
 Prove that :  $AX > XY$



## Model 2

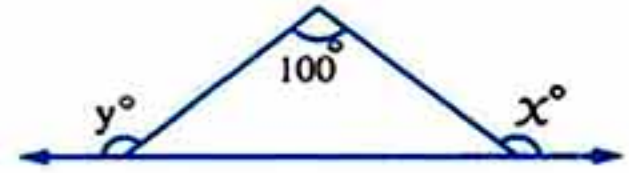
Answer the following questions :

1 Choose the correct answer from those given :

- 1 The triangle which has three axes of symmetry is ..... triangle.  
 (a) scalene (b) isosceles (c) right-angled (d) equilateral
- 2 The sum of lengths of two sides in a triangle is ..... the length of the third side.  
 (a) greater than (b) smaller than (c) equals to (d) twice
- 3 If the lengths of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is ..... cm.  
 (a) 4 (b) 8 (c) 3 (d) 12

## Final Examinations

- 4 In  $\triangle ABC$  if  $m(\angle B) = 130^\circ$ , then the longest side of it is .....  
 (a)  $\overline{BC}$  (b)  $\overline{AC}$  (c)  $\overline{AB}$  (d) its median.
- 5  $\triangle XYZ$  is an isosceles triangle in which :  $m(\angle X) = 100^\circ$ , then  $m(\angle Y) = \dots\dots\dots$   
 (a)  $100^\circ$  (b)  $80^\circ$  (c)  $60^\circ$  (d)  $40^\circ$
- 6 In the opposite figure :  
 $x + y = \dots\dots\dots$   
 (a)  $100^\circ$  (b)  $140^\circ$   
 (c)  $180^\circ$  (d)  $280^\circ$



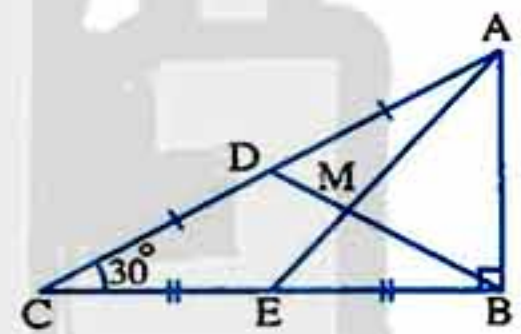
## 2 Complete the following :

- 1 If the measure of an angle in a right-angled triangle is  $45^\circ$ , then the triangle is .....  
 2 The length of any side in a triangle ..... the sum of lengths of the two other sides.  
 3 If  $\overline{AB} \equiv \overline{XY}$ , then  $AB = \dots\dots\dots$   
 4 In  $\triangle ABC$ , if  $m(\angle A) = 30^\circ$  and  $m(\angle B) = 90^\circ$ , then  $BC = \dots\dots\dots AC$   
 5 The axis of symmetry of a line segment is the straight line which ..... at its midpoint.

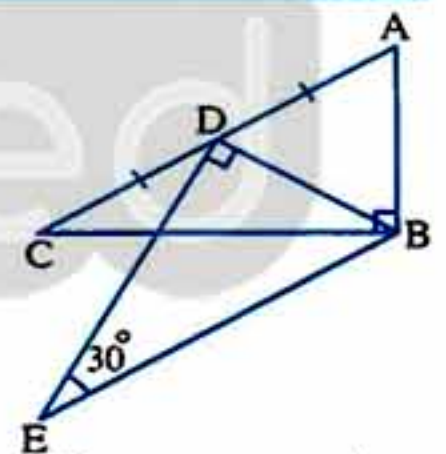
- 3 [a] In  $\triangle ABC$  :  $AB = 7$  cm. ,  $BC = 5$  cm. and  $AC = 6$  cm.  
 Arrange its angles ascendingly due to their measures.

## [b] In the opposite figure :

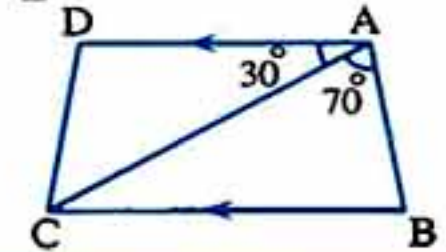
$\triangle ABC$  is right-angled at B  
 $m(\angle C) = 30^\circ$ , D is the midpoint of  $\overline{AC}$   
 E is the midpoint of  $\overline{BC}$ ,  $AC = 9$  cm.  
 Find the length of each of :  $\overline{BD}$ ,  $\overline{BM}$  and  $\overline{AB}$



- 4 [a] In the opposite figure :  
 $m(\angle ABC) = m(\angle BDE) = 90^\circ$   
 $m(\angle E) = 30^\circ$   
 D is the midpoint of  $\overline{AC}$   
 Prove that :  $AC = BE$



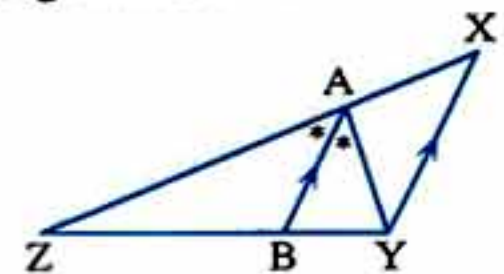
- [b] In the opposite figure :  
 $\overline{AD} \parallel \overline{BC}$ ,  $m(\angle BAC) = 70^\circ$   
 $m(\angle DAC) = 30^\circ$   
 Prove that :  $AC > BC$



- 5 [a] Complete :  
 If the measures of two angles of a triangle are different, then their greater in measure is opposite to .....

## [b] In the opposite figure :

$\overline{AB} \parallel \overline{XY}$  and  $\overline{AB}$  bisects  $\angle YAZ$   
 Prove that :  $XZ > YZ$



## Geometry

## Model for the merge students

Answer the following questions :

## 1 Complete each of the following :

- 1 The point of concurrence of the medians of the triangle divides each median in the ratio ..... : ..... from the base.
- 2 In the right-angled triangle , the length of the median drawn from the vertex of the right angle equals .....
- 3 The base angles of the isosceles triangle are .....
- 4 In  $\triangle ABC$  :  $m(\angle B) = 70^\circ$  ,  $m(\angle C) = 50^\circ$  , then  $AC$  .....  $AB$
- 5 The median of the isosceles triangle from the vertex angle ..... , .....

## 2 Choose the correct answer from those given :

- 1 If  $ABC$  is an equilateral triangle , then  $m(\angle B) =$  .....  
 (a)  $30^\circ$  (b)  $60^\circ$  (c)  $70^\circ$  (d)  $90^\circ$
- 2 The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals ..... the length of the hypotenuse.  
 (a)  $\frac{1}{2}$  (b)  $\frac{1}{3}$  (c)  $\frac{1}{4}$  (d) 2
- 3 If the measure of the vertex angle of an isosceles triangle is  $80^\circ$  , then the measure of one of the base angles equals .....  
 (a)  $60^\circ$  (b)  $40^\circ$  (c)  $30^\circ$  (d)  $50^\circ$
- 4 The number of axes of symmetry of the isosceles triangle is .....  
 (a) 1 (b) 2 (c) 3 (d) zero
- 5 In  $\triangle ABC$  :  $m(\angle A) = 50^\circ$  ,  $m(\angle B) = 60^\circ$  , then the longest side is .....  
 (a)  $\overline{AB}$  (b)  $\overline{BC}$  (c)  $\overline{AC}$

## 3 In the opposite figure , complete :

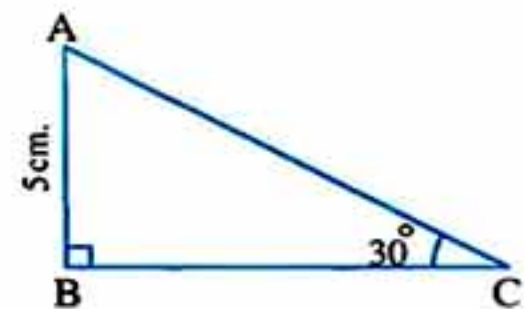
$\triangle ABC$  is a right-angled triangle at  $B$  ,  $m(\angle C) = 30^\circ$  ,  $AB = 5$  cm.

Find : The length of  $\overline{AC}$

$$\therefore m(\angle B) = \dots\dots\dots , m(\angle C) = \dots\dots\dots$$

$$\therefore AB = \frac{1}{2} \times \dots\dots\dots$$

$$\therefore AC = \dots\dots\dots \text{ cm.}$$



- 4 [a] In  $\triangle ABC$  :  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 75^\circ$  ,  $m(\angle C) = 65^\circ$

Arrange the lengths of the sides of the triangle descendingly.

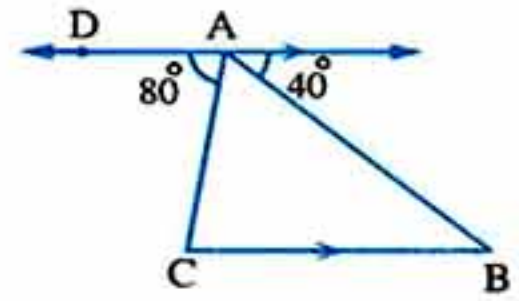
The order is : ..... , ..... , .....

- [b] In the opposite figure :

$$\overrightarrow{AD} \parallel \overrightarrow{BC}$$

Complete :

- 1  $m(\angle B) = \dots\dots\dots^\circ$
- 2 The side ..... is the longest side of  $\triangle ABC$



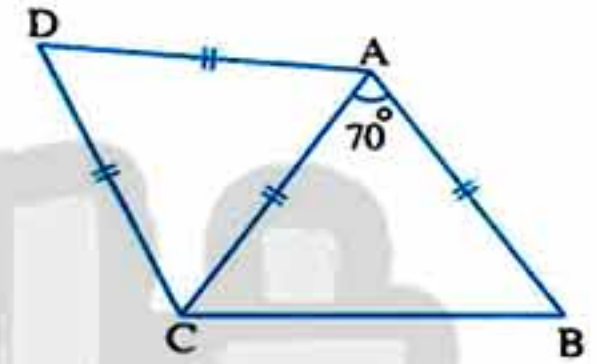
- 5 In the opposite figure :

$$AB = AC = CD = AD = 10 \text{ cm.}$$

$$, m(\angle BAC) = 70^\circ$$

Put (✓) or (✗) :

- 1  $m(\angle B) = 55^\circ$  ( )
- 2  $m(\angle D) = 70^\circ$  ( )
- 3  $m(\angle DCB) = 120^\circ$  ( )
- 4  $AB + AD = 20 \text{ cm.}$  ( )
- 5  $AB + BC = BC + CD$  ( )



## Some Schools Examinations



## on Geometry

1

Cairo Governorate

Centre Cairo Educative Zone  
Saint Joseph College Khoronfish

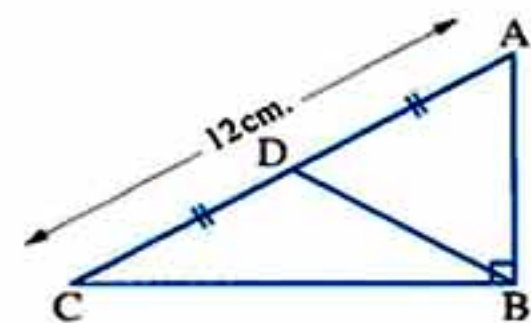
Answer the following questions :

1 Choose the correct answer from the given ones :

- 1 In  $\triangle ABC$  , if  $AB = 6$  cm. and  $AC = 7$  cm. , then  $BC \in \dots\dots\dots$   
 (a)  $]6, 13]$  (b)  $[6, 7]$  (c)  $]1, 13[$  (d)  $[1, 7[$
- 2 The point of intersection of the medians of the triangle divides each of them in the ratio of  $\dots\dots\dots$  from the vertex.  
 (a)  $1 : 2$  (b)  $1 : 3$  (c)  $2 : 1$  (d)  $2 : 3$
- 3 The measure of any exterior angle of the equilateral triangle equals  $\dots\dots\dots^\circ$   
 (a) 60 (b) 100 (c) 120 (d) 150
- 4 In  $\triangle ABC$  , if  $\overline{AD}$  is a median , M is the point of intersection of its medians , then  $AM = \dots\dots\dots AD$   
 (a)  $\frac{1}{2}$  (b) 2 (c)  $\frac{2}{3}$  (d)  $\frac{3}{2}$
- 5  $\triangle XYZ$  is an isosceles triangle in which  $m(\angle X) = 110^\circ$  , then  $m(\angle Y) = \dots\dots\dots^\circ$   
 (a) 110 (b) 35 (c) 60 (d) 45
- 6 In  $\triangle ABC$  , if  $\overline{AB} \perp \overline{BC}$  and  $AB = BC$  , then  $m(\angle A) = \dots\dots\dots^\circ$   
 (a) 30 (b) 45 (c) 60 (d) 90

2 Complete the following :

- 1 The number of axes of symmetry of the equilateral triangle equals  $\dots\dots\dots$
- 2 The base angles in an isosceles triangle are  $\dots\dots\dots$
- 3 The longest side in the right-angled triangle is  $\dots\dots\dots$
- 4 The bisector of the vertex angle of the isosceles triangle  $\dots\dots\dots$
- 5 In the opposite figure :

AC = 12 cm. , then BD =  $\dots\dots\dots$  cm.

- 3 [a] In  $\triangle ABC$ , if  $m(\angle A) = (6x)^\circ$ ,  $m(\angle B) = (4x - 9)^\circ$

and  $m(\angle C) = 3(x - 2)^\circ$

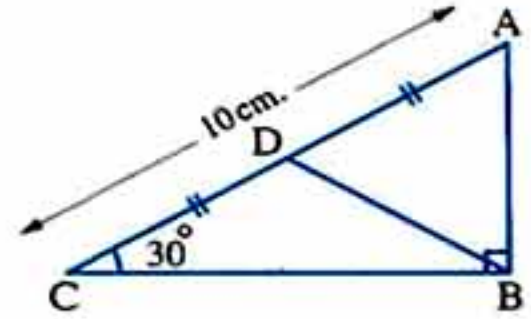
Arrange the side lengths of  $\triangle ABC$  ascendingly.

- [b] In the opposite figure :

$m(\angle ABC) = 90^\circ$ ,  $m(\angle C) = 30^\circ$

,  $AD = DC$  and  $AC = 10$  cm.

Find : The perimeter of  $\triangle ABD$



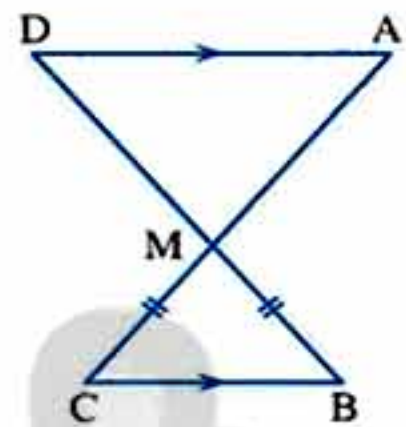
- 4 [a] In the opposite figure :

If  $\overline{AC} \cap \overline{BD} = \{M\}$

,  $\overline{AD} \parallel \overline{BC}$  and  $MB = MC$

, prove that :

$\triangle MAD$  is isosceles.

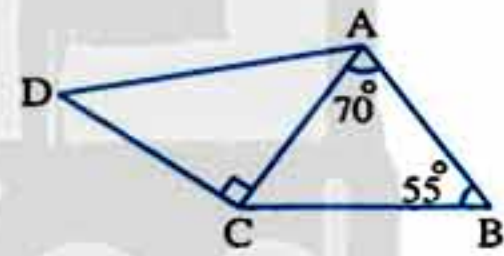


- [b] In the opposite figure :

$m(\angle BAC) = 70^\circ$ ,  $m(\angle B) = 55^\circ$

and  $m(\angle ACD) = 90^\circ$

Prove that :  $AD > AB$



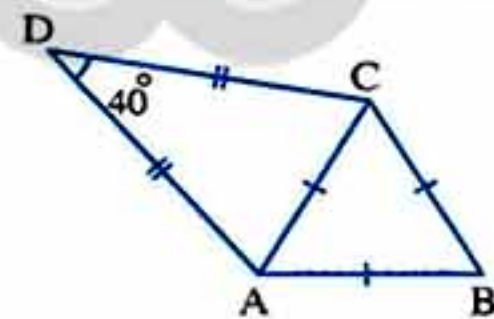
- 5 [a] In the opposite figure :

$m(\angle D) = 40^\circ$

,  $DA = DC$

and  $\triangle ABC$  is an equilateral triangle.

Find :  $m(\angle DCB)$

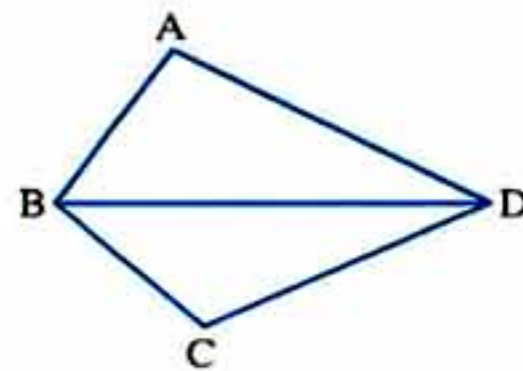


- [b] In the opposite figure :

$AB < AD$  and  $BC < CD$

Prove that :

$m(\angle ABC) > m(\angle ADC)$



## Geometry

2

Cairo Governorate

Hadeik El-Kobba Educational Zone



Answer the following questions :

## 1 Complete :

- 1 The median of an isosceles triangle from the vertex angle bisects ..... and is perpendicular to .....
- 2 The measure of the exterior angle at any vertex of the equilateral triangle is .....°
- 3 The base angles of the isosceles triangle are .....
- 4 ABC is a triangle in which  $AB = 4$  cm. ,  $BC = 6$  cm. , then  $AC \in ]$ ..... , .....[
- 5 The longest side in the right-angled triangle is .....

## 2 Choose the correct answer :

- 1 In  $\triangle ABC$  , if  $AC = 4$  cm. ,  $BC = 3$  cm. , then  $m(\angle B)$  .....  $m(\angle A)$   
 (a)  $>$  (b)  $<$  (c)  $=$  (d)  $\leq$
- 2 The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals ..... the length of the hypotenuse.  
 (a) half (b) twice (c) third (d) quarter
- 3 In  $\triangle ABC$  , if  $m(\angle A) = 100^\circ$  and  $AB = AC$  , then  $m(\angle ABC) =$  .....  
 (a)  $80^\circ$  (b)  $60^\circ$  (c)  $40^\circ$  (d)  $30^\circ$
- 4 The point of intersection of the medians of the triangle divides each of them in the ratio ..... from the base.  
 (a)  $1 : 3$  (b)  $3 : 1$  (c)  $1 : 2$  (d)  $2 : 1$
- 5 If  $\triangle ABD$  is obtuse-angled at B and C is the midpoint of  $\overline{BD}$  , then the longest side is .....  
 (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{AD}$  (d)  $\overline{BD}$
- 6 The triangle whose side lengths are 2 cm. ,  $(x + 3)$  cm. and 5 cm. becomes an isosceles triangle when  $x =$  ..... cm.  
 (a) 1 (b) 2 (c) 3 (d) 4

## Final Examinations

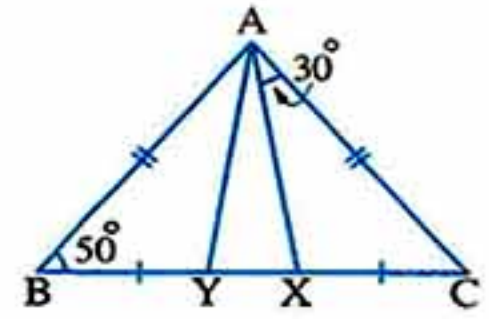
3 [a] In the opposite figure :

ABC is a triangle ,  $AB = AC$  ,  $XC = YB$

,  $m(\angle B) = 50^\circ$  ,  $m(\angle CAX) = 30^\circ$

1 Prove that :  $\triangle AXY$  is an isosceles triangle.

2 Find :  $m(\angle AYB)$

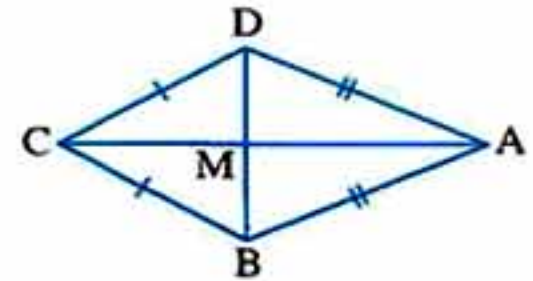


[b] In the opposite figure :

$\overline{BD} \cap \overline{AC} = \{M\}$

,  $AB = AD$  and  $BC = DC$

Prove that : M is the midpoint of  $\overline{BD}$



4 [a] In the opposite figure :

ABC is a triangle in which  $AB > AC$  ,  $\overline{BD}$  bisects  $\angle ABC$

,  $\overline{CD}$  bisects  $\angle ACB$

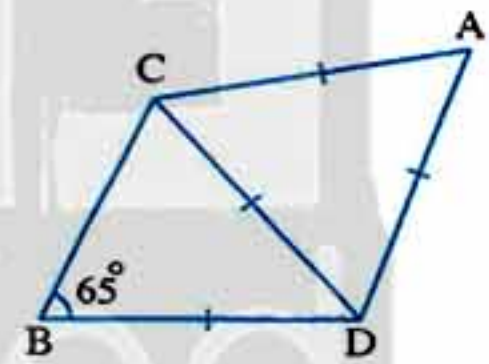
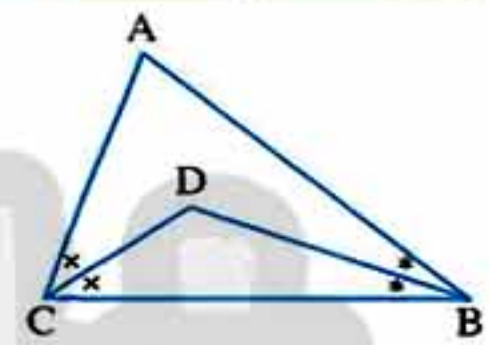
Prove that :  $BD > CD$

[b] In the opposite figure :

$AD = DC = AC = BD$

,  $m(\angle B) = 65^\circ$

Find with proof :  $m(\angle BDA)$



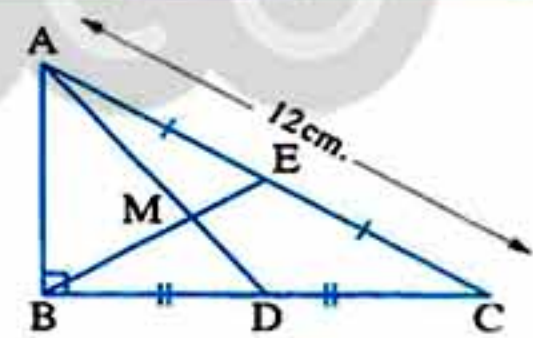
5 [a] In the opposite figure :

$\triangle ABC$  is right-angled at B

, E and D are the midpoints of  $\overline{AC}$  and  $\overline{BC}$  respectively

,  $AC = 12$  cm.

Find the length of each of :  $\overline{BE}$  and  $\overline{ME}$



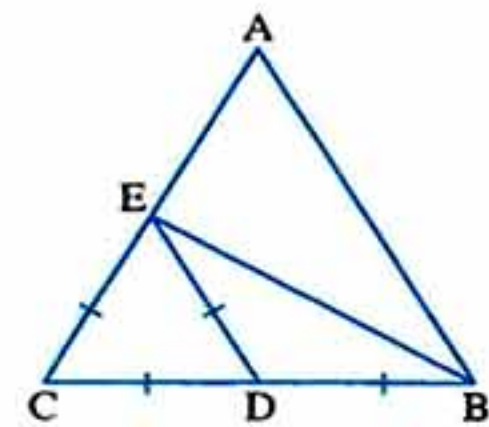
[b] In the opposite figure :

ABC is a triangle ,  $D \in \overline{BC}$  and  $E \in \overline{AC}$

such that  $BD = CD = CE = DE$

Prove that : 1  $BC > BE$

2  $AB + BD > AE$



## Geometry

3

Cairo Governorate

Rod El-Farag Educational Zone  
S.T. Mary's School

Answer the following questions :

1 Choose the correct answer from the given ones :

- 1 In the triangle XYZ , if  $m(\angle Z) = 70^\circ$  and  $m(\angle Y) = 60^\circ$  , then YZ ..... XY  
(a)  $>$  (b)  $=$  (c)  $<$  (d) twice
- 2 The measure of the exterior angle of the equilateral triangle equals .....  
(a)  $45^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $120^\circ$
- 3 The intersection point of the medians of a triangle divides each of them from the direction of the base in the ratio .....  
(a) 1 : 2 (b) 2 : 1 (c) 1 : 3 (d) 2 : 3
- 4 ABCD is a rectangle , M is the point of intersection of its diagonals , if the length of the diagonal is 6 cm. , then the length of the median  $\overline{AM}$  equals ..... cm.  
(a) 3 (b) 6 (c) 9 (d) 12
- 5 ABC is an isosceles triangle where  $AB = AC$  and  $m(\angle A) = 100^\circ$  , then  $m(\angle B) =$  .....  
(a)  $60^\circ$  (b)  $50^\circ$  (c)  $40^\circ$  (d)  $30^\circ$
- 6 The number of axes of symmetry of the isosceles triangle equals .....  
(a) 0 (b) 1 (c) 2 (d) 3

2 Complete :

- 1 If the measures of two angles of a triangle are different , then the greater in measure is opposite to .....
- 2 The bisector of the vertex angle of the isosceles triangle ..... , .....
- 3 The base angles of the isosceles triangle are .....
- 4 In any triangle , the sum of the lengths of any two sides ..... the length of the third side.
- 5  $\triangle ABC$  is right-angled at B ,  $m(\angle A) = 30^\circ$  ,  $AC = 10$  cm. , then  $CB =$  ..... cm.

3 [a] ABC is a triangle in which  $AB = AC$  ,  $\overline{BD}$  bisects  $\angle ABC$  ,  $\overline{CD}$  bisects  $\angle ACB$  ,  $\overline{BD} \cap \overline{CD} = \{D\}$  Prove that :  $\triangle DBC$  is an isosceles triangle.

## Final Examinations

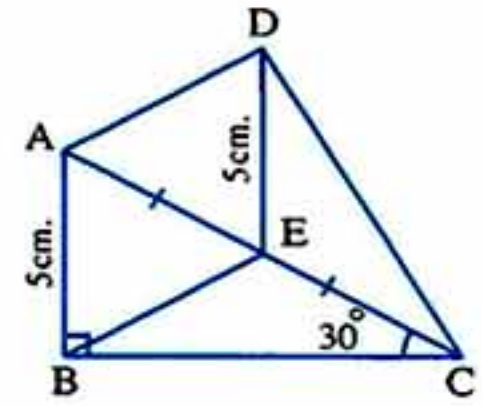
[b] In the opposite figure :

ABC is a right-angled triangle at B

,  $m(\angle ACB) = 30^\circ$  ,  $AB = 5$  cm.

, E is the midpoint of  $\overline{AC}$  , if  $DE = 5$  cm.

, prove that :  $m(\angle ADC) = 90^\circ$



4 [a] In the opposite figure :

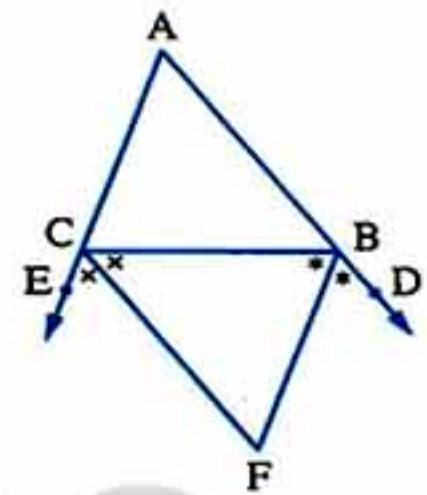
ABC is a triangle in which  $AB > AC$  ,  $D \in \overline{AB}$  ,  $E \in \overline{AC}$

,  $\overline{BF}$  bisects  $\angle DBC$  ,  $\overline{CF}$  bisects  $\angle BCE$

,  $\overline{BF} \cap \overline{CF} = \{F\}$

Prove that : 1  $m(\angle FBC) > m(\angle BCF)$

2  $CF > BF$

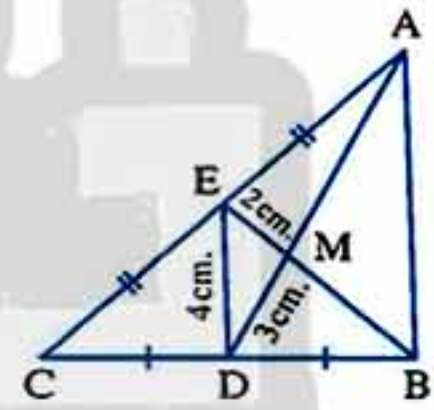


[b] In the opposite figure :

ABC is a triangle in which  $ME = 2$  cm. ,  $MD = 3$  cm.

,  $DE = 4$  cm. , D and E are the midpoints of  $\overline{BC}$  ,  $\overline{AC}$  respectively

Find : The perimeter of  $\triangle MAB$

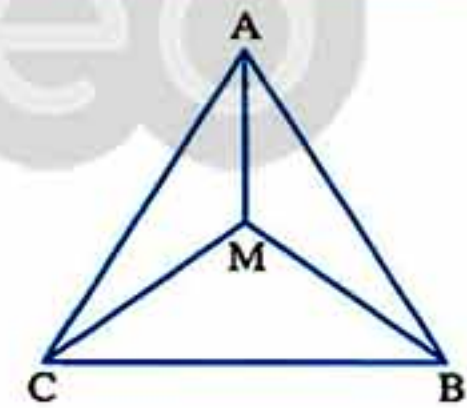


5 [a] In the opposite figure :

ABC is a triangle in which

M is a point inside it.

Prove that :  $MA + MB + MC > \frac{1}{2}$  the perimeter of  $\triangle ABC$



[b] In the opposite figure :

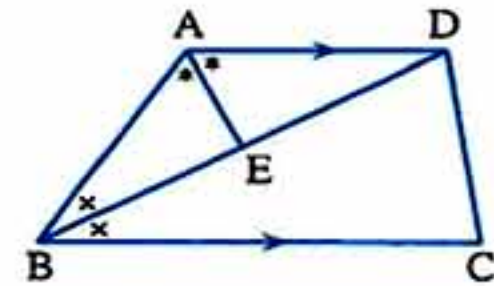
ABCD is a quadrilateral in which  $\overline{AD} \parallel \overline{BC}$

,  $\overline{BD}$  bisects  $\angle ABC$  ,  $\overline{AE}$  bisects  $\angle BAD$

Prove that : 1  $AB = AD$

2  $\overline{AE} \perp \overline{BD}$

3  $BE = ED$



## Geometry

4

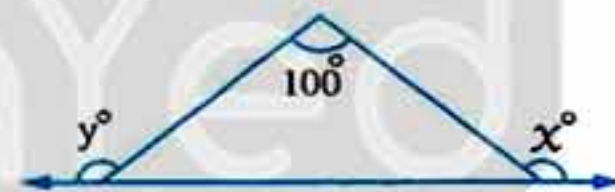
Giza Governorate

Boulaq El Dakroul Directorate of Education  
Dar El-Hanan Lang. Sch. for Girls

Answer the following questions :

1 Choose the correct answer :

- 1 The number of axes of symmetry of the isosceles triangle equals .....  
(a) 3 (b) 2 (c) 1 (d) 0
- 2 The point of intersection of the medians of the triangle divides each of them in the ratio of ..... from the base.  
(a) 2 : 1 (b) 3 : 1 (c) 3 : 2 (d) 1 : 2
- 3  $\Delta XYZ$  is right-angled at Y , then  $XZ$  .....  $YZ$   
(a)  $>$  (b)  $<$  (c)  $=$  (d)  $\leq$
- 4 If 10 cm. , 5 cm. and  $x$  cm. are side lengths of an isosceles triangle , then  $x =$  .....  
(a) 10 (b) 5 (c) 15 (d) 4
- 5 The measure of the exterior angle of an equilateral triangle equals .....°  
(a) 30 (b) 60 (c) 90 (d) 120
- 6 In the opposite figure :  
 $x + y =$  .....  
(a)  $100^\circ$  (b)  $140^\circ$   
(c)  $180^\circ$  (d)  $280^\circ$



2 Complete the following :

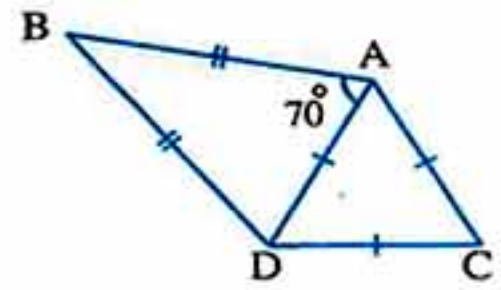
- 1 In  $\Delta ABC$  , if  $m(\angle B) = 70^\circ$  ,  $m(\angle C) = 50^\circ$  , then  $AC$  .....  $AB$
- 2 In  $\Delta ABC$  , if  $m(\angle A) = m(\angle B) + m(\angle C)$  , then the longest side is .....
- 3 The axis of symmetry of a line segment is the straight line which ..... from its midpoint.
- 4  $ABC$  is a triangle in which  $AB = 4$  cm. ,  $CB = 7$  cm.  
 , then  $AC \in$  ] ..... , ..... [
- 5 If  $\overline{AD}$  is a median in  $\Delta ABC$  , and  $M$  is the point of intersection of its medians and  $AM = 12$  cm. , then  $AD =$  .....

3 [a] In the opposite figure :

$$AB = BD, m(\angle BAD) = 70^\circ$$

,  $\triangle ADC$  is an equilateral triangle.

Find :  $m(\angle BDC)$

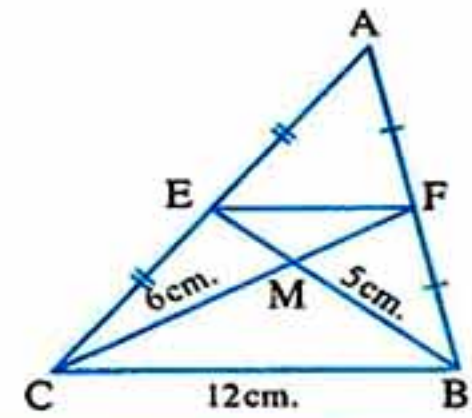


[b] In the opposite figure :

$ABC$  is a triangle,  $F$  and  $E$  are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively.

If  $BM = 5$  cm.,  $CM = 6$  cm.,  $BC = 12$  cm.

, then find : The perimeter of  $\triangle MEF$



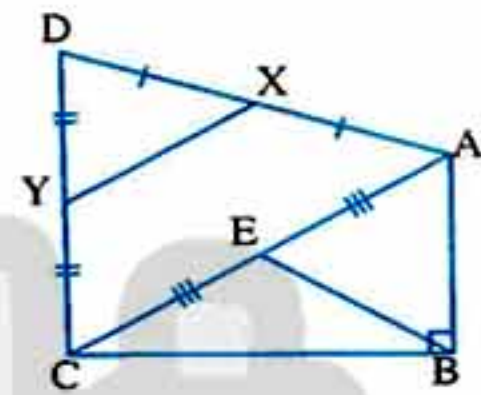
4 [a] In the opposite figure :

$$m(\angle ABC) = 90^\circ$$

,  $E$  is the midpoint of  $\overline{AC}$

and  $X, Y$  are the midpoints of  $\overline{DA}$  and  $\overline{DC}$

Prove that :  $XY = BE$



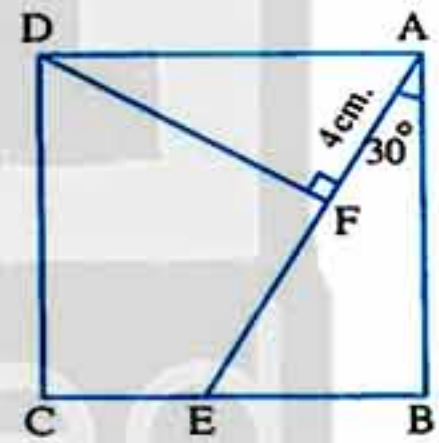
[b] In the opposite figure :

$ABCD$  is a square,  $E \in \overline{BC}$

where  $m(\angle BAE) = 30^\circ$  and  $\overline{DF} \perp \overline{AE}$

, if  $AF = 4$  cm.

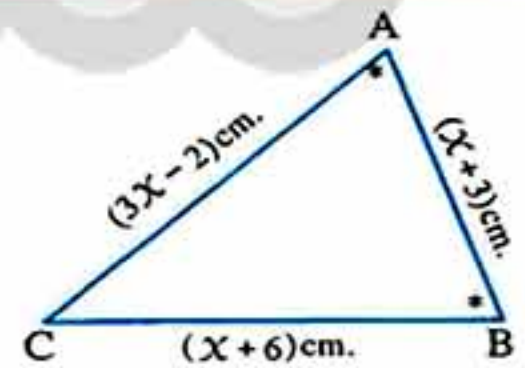
, calculate : The area of the square  $ABCD$



5 [a] In the opposite figure :

$$m(\angle A) = m(\angle B)$$

Find : The perimeter of  $\triangle ABC$



[b] In the opposite figure :

$ABC$  is a triangle in which :

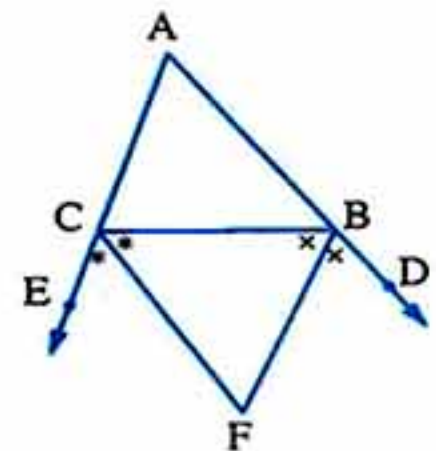
$$AB > AC, D \in \overline{AB}, E \in \overline{AC}$$

,  $\overline{BF}$  bisects  $\angle DBC$ ,  $\overline{CF}$  bisects  $\angle BCE$

$$, \overline{BF} \cap \overline{CF} = \{F\}$$

Prove that : 1  $m(\angle FBC) > m(\angle BCF)$

$$2 CF > BF$$



## Geometry

5

Giza Governorate

6<sup>th</sup> October Directorate  
Om El-Moamneen Lang. School

Answer the following questions :

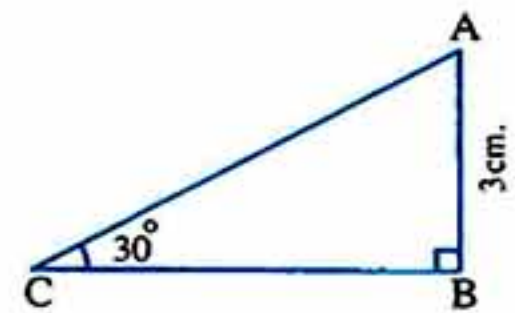
## 1 Choose the correct answer :

- 1 If ABC is an isosceles triangle ,  $m(\angle A) = 60^\circ$  ,  $AB = 4$  cm.  
 , then its perimeter = ..... cm.  
(a) 4 (b) 12 (c) 6 (d) 9
- 2 XYZ is a triangle in which  $m(\angle Z) = 70^\circ$  ,  $m(\angle Y) = 60^\circ$  , then  $YZ$  .....  $XY$   
(a)  $>$  (b)  $<$  (c)  $=$  (d)  $\geq$
- 3 In  $\triangle ABC$  , if  $m(\angle B) = 90^\circ$  , then the longest side is .....  
(a)  $\overline{BC}$  (b)  $\overline{AB}$  (c)  $\overline{AC}$  (d) its median.
- 4 A triangle has one axis of symmetry , the lengths of two sides are 4 cm. and 8 cm.  
 , then the length of the third side is ..... cm.  
(a) 3 (b) 6 (c) 4 (d) 8
- 5 The point of intersection of the medians of the triangle divides each of the medians in  
 the ratio ..... from the base.  
(a) 2 : 1 (b) 3 : 2 (c) 2 : 4 (d) 3 : 4
- 6 If the length of any side of a triangle =  $\frac{1}{3}$  the perimeter of the triangle , then the  
 number of axes of symmetry of the triangle equals .....  
(a) 3 (b) 1 (c) 2 (d) zero

## 2 Complete :

- 1 The bisector of the vertex angle of the isosceles triangle ..... and .....

## 2 In the opposite figure :

The length of  $\overline{AC}$  = .....

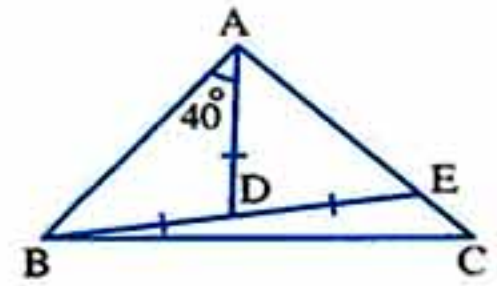
- 3 In  $\triangle ABC$  ,  $m(\angle A) = m(\angle B) = m(\angle C)$  , then the measure of the exterior angle  
 equals .....
- 4 If the lengths of two sides of a triangle are 4 cm. , 7 cm. , then the length of the third  
 side belongs to ] ..... , ..... [
- 5 If  $\angle X$  and  $\angle Y$  are two supplementary angles ,  $\angle X \equiv \angle Y$  , then  $m(\angle X) = \dots\dots\dots^\circ$

3 [a] In the opposite figure :

$$AD = BD = ED, m(\angle DAB) = 40^\circ$$

Prove that :

- 1  $AD < AB$       2  $BC > AC$

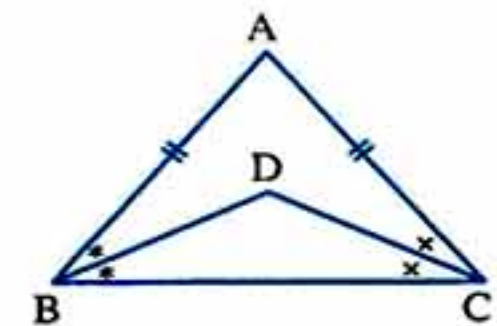


[b] In the opposite figure :

$$AB = AC, \overline{BD} \text{ bisects } \angle ABC$$

$$\text{and } \overline{CD} \text{ bisects } \angle ACB$$

Prove that :  $\triangle DBC$  is an isosceles triangle.



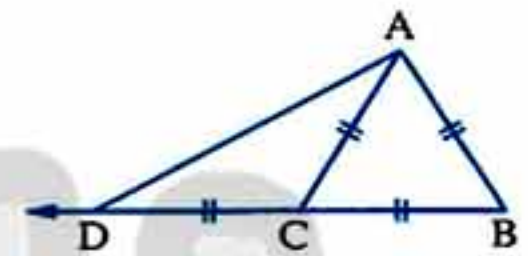
4 [a] ABC is a triangle in which  $m(\angle A) = (6x)^\circ$ ,  $m(\angle B) = (4x - 9)^\circ$

,  $m(\angle C) = 3(x - 2)^\circ$  Arrange the lengths of the sides of the triangle ascendingly.

[b] In the opposite figure :

$$AB = AC = CB = CD$$

Prove that :  $\overline{AB} \perp \overline{AD}$



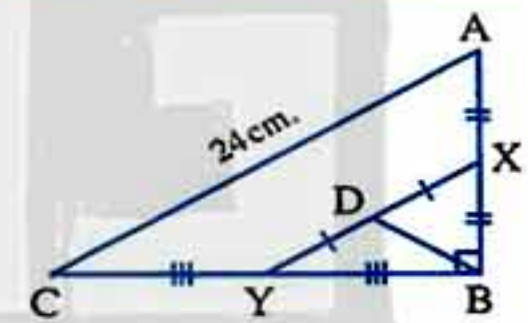
5 [a] In the opposite figure :

$$m(\angle ABC) = 90^\circ, X \text{ is the midpoint of } \overline{AB}$$

$$, Y \text{ is the midpoint of } \overline{BC}$$

$$, D \text{ is the midpoint of } \overline{XY}, AC = 24 \text{ cm.}$$

Find : The length of  $\overline{BD}$



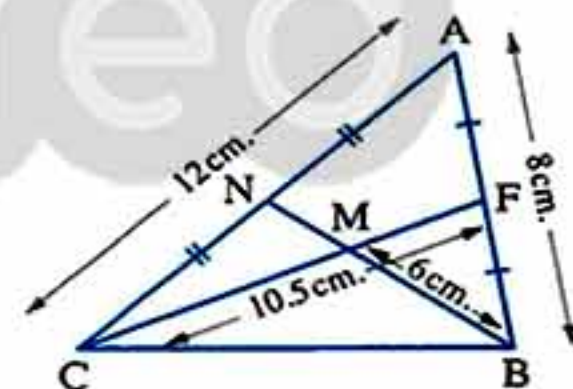
[b] In the opposite figure :

$$F \text{ and } N \text{ are the midpoints of } \overline{AB} \text{ and } \overline{AC} \text{ respectively}$$

$$, AB = 8 \text{ cm.}, AC = 12 \text{ cm.}, BM = 6 \text{ cm.}$$

$$, CF = 10.5 \text{ cm.}$$

Find : The perimeter of the figure AFMN



6

Alexandria Governorate

Middle Educational Zone  
Math Supervision

Answer the following questions :

1 Complete each of the following :

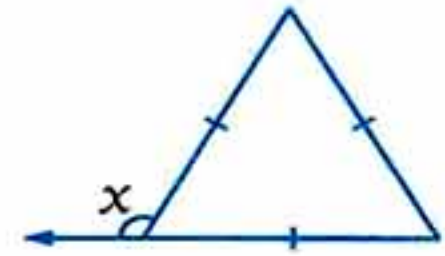
1 If  $m(\angle A) = 65^\circ$ , then  $m(\text{complementary } \angle A) = \dots\dots\dots^\circ$

2 In  $\triangle ABC$ ,  $m(\angle A) = 50^\circ$ ,  $m(\angle C) = 80^\circ$ , then  $CB = \dots\dots\dots$

## Geometry

3 In the opposite figure :

$$x = \dots\dots\dots^\circ$$



4 The number of axes of symmetry for the rectangle equals .....

5 In  $\triangle ABC$  ,  $m(\angle B) = 70^\circ$  ,  $m(\angle C) = 45^\circ$  , then  $BC \dots\dots\dots AC$

6 The medians of the triangle are .....

2 Choose the correct answer :

1 The sum of lengths of two sides in a triangle is ..... the length of the third side.

- (a) > (b) < (c) = (d) twice

2 The triangle which has no axis of symmetry is .....

- (a) scalene. (b) isosceles. (c) equilateral. (d) right-angled.

3 The numbers which can not be side lengths of a triangle are .....

- (a) 3 , 3 , 3 (b) 3 , 3 , 4 (c) 3 , 3 , 5 (d) 3 , 3 , 6

4  $\overline{BE}$  is a median in  $\triangle ABC$  ,  $M$  is the point of concurrence of the medians  
If  $BM = 6$  cm. , then  $ME = \dots\dots\dots$  cm.

- (a) 2 (b) 3 (c) 4 (d) 9

5 The angle whose measure is  $180^\circ$  is called ..... angle.

- (a) an acute (b) an obtuse (c) a straight (d) a reflex

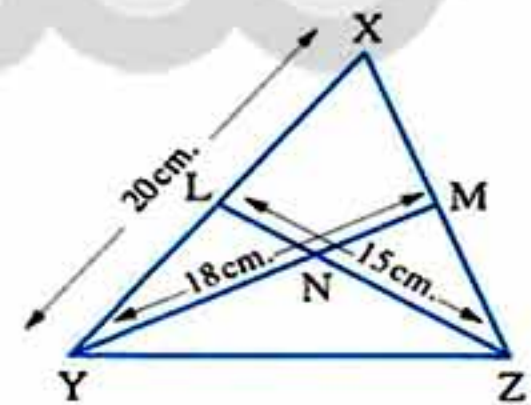
3 [a]  $\triangle ABC$  is right-angled at  $B$  , if  $m(\angle A) = 75^\circ$  , arrange the lengths of its sides descendingly.

[b] In the opposite figure :

$N$  is the point of concurrence of  
the medians of  $\triangle XYZ$

,  $LZ = 15$  cm. ,  $YM = 18$  cm. ,  $XY = 20$  cm.

Find : The perimeter of  $\triangle NLY$



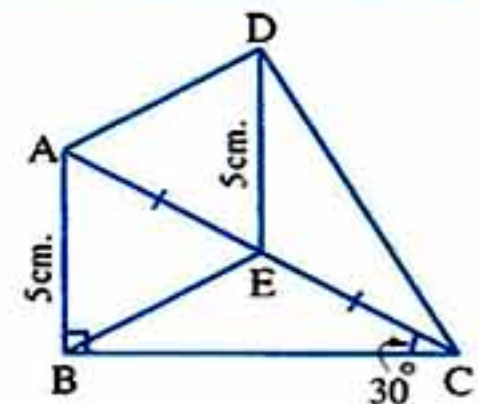
4 [a] In the opposite figure :

$m(\angle ABC) = 90^\circ$  ,  $E$  is the midpoint of  $\overline{AC}$

,  $m(\angle ACB) = 30^\circ$

,  $AB = DE = 5$  cm.

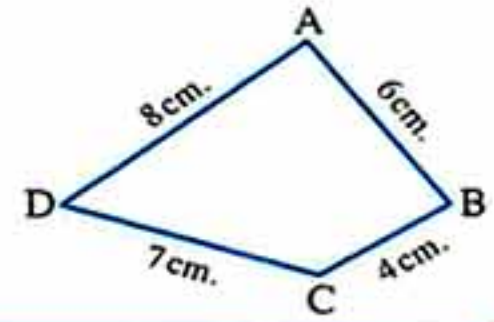
Prove that :  $m(\angle ADC) = 90^\circ$



## Final Examinations

[b] In the opposite figure :

Prove that :  $m(\angle BCD) > m(\angle BAD)$



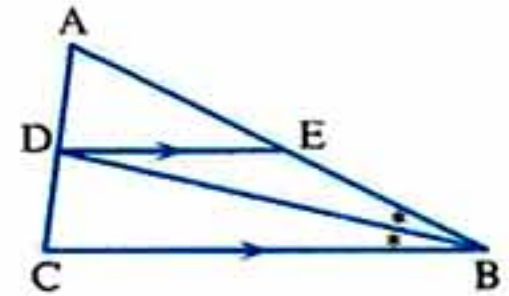
5 [a] In the opposite figure :

$\overline{BD}$  bisects  $\angle ABC$

,  $\overline{DE} \parallel \overline{BC}$

Prove that :

$\triangle EBD$  is an isosceles triangle.

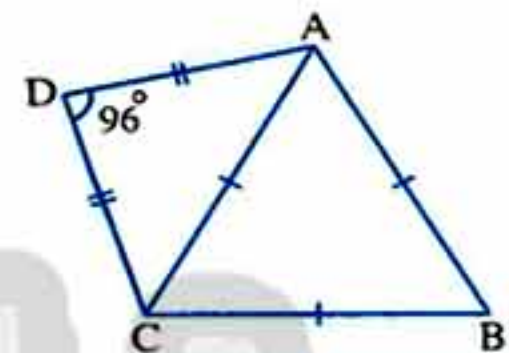


[b] In the opposite figure :

$\triangle ABC$  is equilateral ,  $DA = DC$

,  $m(\angle ADC) = 96^\circ$

Find :  $m(\angle DAB)$



7

Alexandria Governorate

Agency Educational Zone  
Inspector of Maths



Answer the following questions :

1 Choose the correct answer :

- 1 XYZ is a triangle in which  $m(\angle Z) = 70^\circ$  ,  $m(\angle Y) = 60^\circ$  , then  $YZ \dots\dots\dots XY$   
 (a)  $>$  (b)  $<$  (c)  $=$  (d) twice
- 2 The two diagonals are perpendicular in the .....  
 (a) rectangle. (b) rhombus. (c) trapezium. (d) triangle.
- 3 The measure of the exterior angle of the equilateral triangle equals ..... $^\circ$   
 (a) 360 (b) 120 (c) 60 (d) 180
- 4 If the lengths of two sides in an isosceles triangle are 3 cm. , 7 cm. , then the length of the third side is ..... cm.  
 (a) 3 (b) 7 (c) 10 (d) 4
- 5 The point of concurrence of the medians of the triangle divides each median in the ratio ..... from its base.  
 (a) 2 : 1 (b) 1 : 3 (c) 1 : 4 (d) 1 : 2
- 6 If the side length of an equilateral triangle is 10 cm. , then its height equals ..... cm.  
 (a) 5 (b) 10 (c)  $5\sqrt{3}$  (d) 30

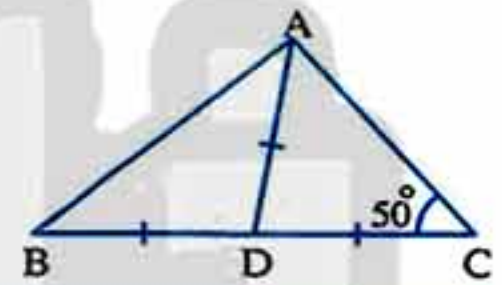
## Geometry

## 2 Complete :

- 1 If the isosceles triangle has an angle of measure  $45^\circ$  , then the triangle is .....  
- angled triangle.
- 2 The sum of lengths of any two sides of a triangle is ..... the length of the third side.
- 3 In the opposite figure :  
If  $m(\angle C) = 2 m(\angle A)$   
,  $CB = 4 \text{ cm.}$   
, then  $AC = \dots\dots\dots \text{ cm.}$

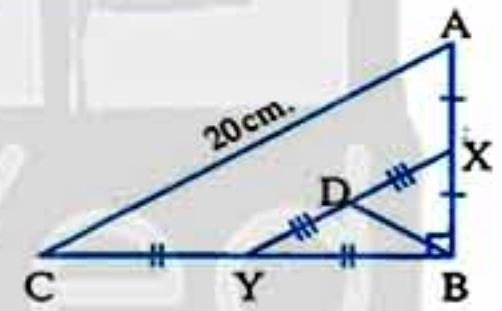


- 4 If the two side lengths in a triangle are  $4 \text{ cm.}$  ,  $7 \text{ cm.}$  , then the length of the third side  $\in ]\dots\dots\dots , \dots\dots\dots [$
- 5 In the opposite figure :  
 $AD = DC = BD$   
,  $m(\angle C) = 50^\circ$   
, then  $m(\angle B) = \dots\dots\dots^\circ$



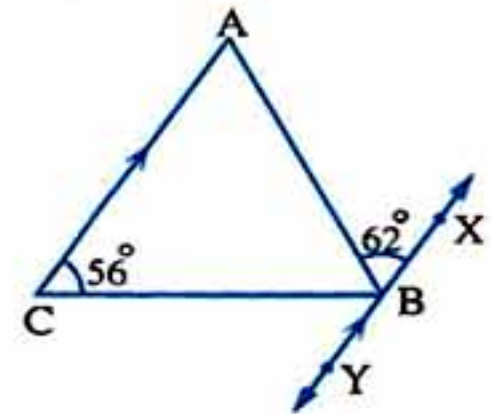
## 3 [a] In the opposite figure :

$m(\angle ABC) = 90^\circ$  , D is the midpoint of  $\overline{XY}$   
, X , Y are the midpoints of  $\overline{AB}$  ,  $\overline{BC}$  respectively ,  $AC = 20 \text{ cm.}$   
Find : The length of  $\overline{BD}$



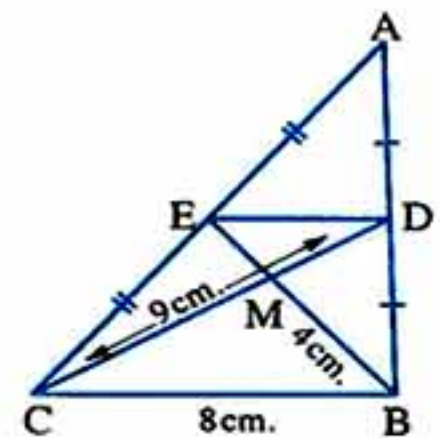
## [b] In the opposite figure :

$B \in \overline{XY}$  ,  $\overline{XY} \parallel \overline{AC}$   
,  $m(\angle ABX) = 62^\circ$   
and  $m(\angle C) = 56^\circ$   
Prove that :  $AC = BC$



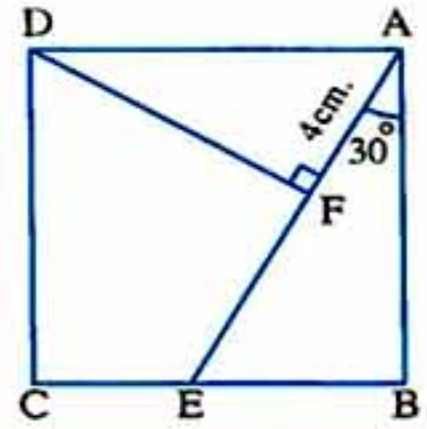
## 4 [a] In the opposite figure :

D , E are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively  
,  $DC = 9 \text{ cm.}$  ,  $MB = 4 \text{ cm.}$  and  $BC = 8 \text{ cm.}$   
Find : The perimeter of  $\triangle DME$



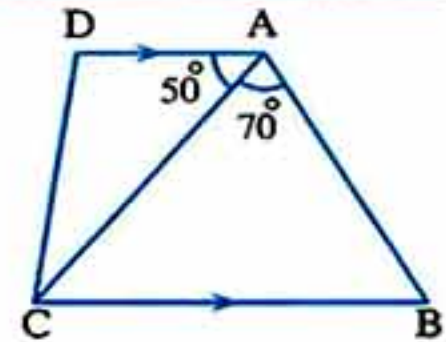
[b] In the opposite figure :

ABCD is a square ,  $E \in \overline{BC}$   
 , where  $m(\angle BAE) = 30^\circ$  and  $\overline{DF} \perp \overline{AE}$   
 , if  $AF = 4$  cm.  
 , calculate : The area of the square ABCD



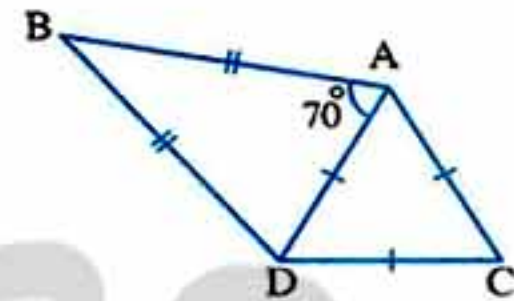
5 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle CAB) = 70^\circ$   
 ,  $m(\angle DAC) = 50^\circ$   
 Prove that :  $BC > AC$



[b] In the opposite figure :

$AB = BD$  ,  $m(\angle BAD) = 70^\circ$   
 ,  $\triangle ADC$  is equilateral  
 Find :  $m(\angle BDC)$



8

El-Kalyoubia Governorate

Directorate of Education  
 Inspection of Mathematics



Answer the following questions :

1 Choose the correct answer :

- 1 ABC is an equilateral triangle , then  $m(\angle A) = \dots\dots\dots^\circ$   
 (a) 45 (b) 60 (c) 120 (d) 35
- 2  $\triangle XYZ$  is an isosceles triangle ,  $m(\angle X) = 100^\circ$  , then  $m(\angle Y) = \dots\dots\dots^\circ$   
 (a) 100 (b) 80 (c) 60 (d) 40
- 3 The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals  $\dots\dots\dots$  the length of the hypotenuse.  
 (a)  $\frac{1}{2}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{4}$  (d) 2
- 4 The number of axes of symmetry of the isosceles triangle equals  $\dots\dots\dots$   
 (a) 0 (b) 1 (c) 2 (d) 3
- 5 If the lengths of two sides of an isosceles triangle are 2 cm. , 5 cm. , then the length of the third side equals  $\dots\dots\dots$  cm.  
 (a) 2 (b) 3 (c) 4 (d) 5
- 6 In the triangle ABC , if  $m(\angle A) = 50^\circ$  ,  $m(\angle B) = 60^\circ$  , then the longest side is  $\dots\dots\dots$   
 (a)  $\overline{AB}$  (b)  $\overline{BC}$  (c)  $\overline{AC}$  (d) 110 cm.

## Geometry

## 2 Complete :

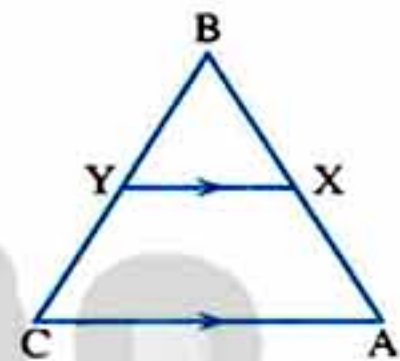
- 1 The medians of a triangle are .....
- 2 The longest side of the right-angled triangle is the .....
- 3 If  $AB = AC$  in the triangle  $ABC$  , then  $ABC$  is ..... triangle.
- 4  $XYZ$  is a triangle ,  $m(\angle Z) = 40^\circ$  ,  $m(\angle Y) = 30^\circ$  , then  $XY$  .....  $XZ$
- 5 If the lengths of two sides of a triangle are 6 cm. and 9 cm. , then the length of the third side  $\in$  ..... , ..... [

- 3 [a] In  $\triangle ABC$  ,  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 75^\circ$  ,  $m(\angle C) = 65^\circ$   
Arrange the lengths of the sides of this triangle descendingly.

## [b] In the opposite figure :

$$AB = BC , \overline{XY} \parallel \overline{AC}$$

Prove that :  $BX = BY$

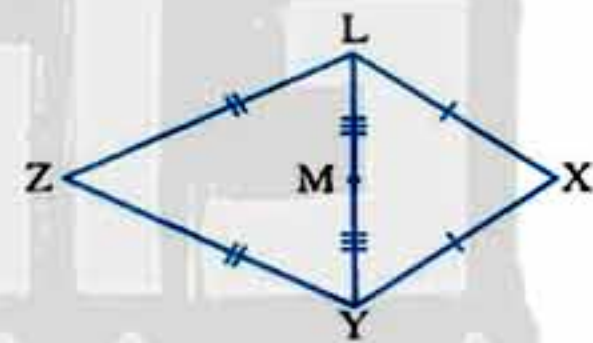


## 4 [a] In the opposite figure :

$$XY = XL , ZY = ZL$$

$$, LM = MY$$

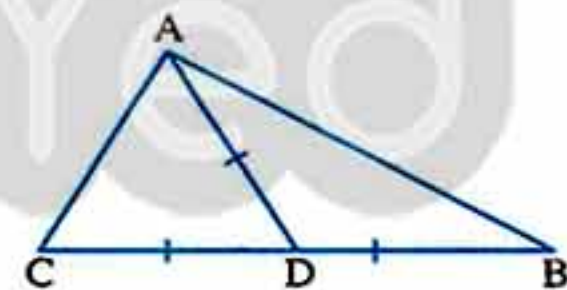
Prove that :  $X , M , Z$  are on the same straight line.



## [b] In the opposite figure :

$$AB > AC , DB = DC = AD$$

Prove that :  $m(\angle BAD) < m(\angle CAD)$



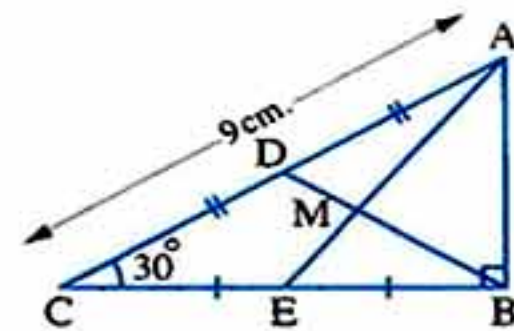
## 5 [a] In the opposite figure :

$\triangle ABC$  is a right-angled triangle at B

,  $m(\angle C) = 30^\circ$  , D is the midpoint of  $\overline{AC}$

, E is the midpoint of  $\overline{BC}$  ,  $AC = 9$  cm.

Find the length of each of :  $\overline{BD}$  ,  $\overline{BM}$  ,  $\overline{AB}$  ,  $\overline{MD}$

[b]  $ABC$  is a triangle such that

$$m(\angle A) = (2x)^\circ , m(\angle C) = (x + 40)^\circ , m(\angle B) = (3x - 10)^\circ$$

Prove that :  $AB = AC$

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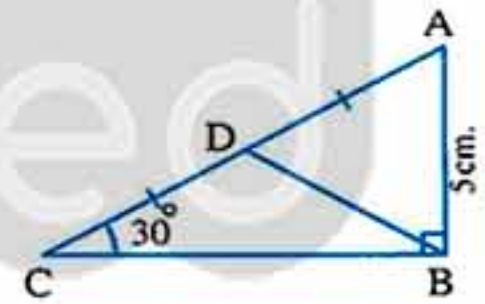
El-Sharkia Governorate

Zagazig English Language School  
for Girls

Answer the following questions :

1 Choose the correct answer :

- 1 In  $\triangle ABC$  ,  $m(\angle A) = 60^\circ$  ,  $m(\angle C) = 45^\circ$  , then .....  
 (a)  $AB < AC$  (b)  $AB = AC$  (c)  $AB > AC$  (d)  $AB = BC$
- 2 If M is the point of concurrence of the medians of  $\triangle ABC$  ,  $\overline{AD}$  is a median , then  $MA =$  .....  
 (a)  $2 AD$  (b)  $\frac{2}{3} AD$  (c)  $\frac{3}{2} AD$  (d)  $\frac{1}{2} MD$
- 3 In  $\triangle ABC$  ,  $AB = 4$  cm. ,  $BC = 6$  cm. , then  $AC \in$  .....  
 (a)  $]2, 4[$  (b)  $[2, 10]$  (c)  $]2, 10[$  (d)  $[0, 10]$
- 4 The number of axes of symmetry of the equilateral triangle equals .....  
 (a) zero (b) 1 (c) 2 (d) 3
- 5 In  $\triangle ABC$  ,  $AB = AC$  ,  $m(\angle B) = x + 30^\circ$  ,  $m(\angle C) = 2x + 5^\circ$  , then  $x =$  .....  
 (a)  $25^\circ$  (b)  $20^\circ$  (c)  $35^\circ$  (d)  $3^\circ$
- 6 In the opposite figure :  
 $AD = DC$  ,  $m(\angle C) = 30^\circ$  ,  $m(\angle ABC) = 90^\circ$  ,  $AB = 5$  cm. , then the perimeter of  $\triangle ABD =$  ..... cm.  
 (a) 5 (b) 15 (c) 20 (d) 25



2 Complete :

- 1 ABCD is a rectangle ,  $AB = 3$  cm. ,  $BC = 4$  cm. , then  $BD =$  ..... cm.
- 2 In  $\triangle ABC$  , if D is the midpoint of  $\overline{BC}$  and  $AD = \frac{1}{2} BC$  , then  $m(\angle CAB) =$  .....°
- 3 The longest side in the right-angled triangle is .....
- 4 If  $\triangle ABC \equiv \triangle XYZ$  , then  $AC - XZ =$  .....
- 5 The median that is drawn from the vertex angle of an isosceles triangle ..... and .....

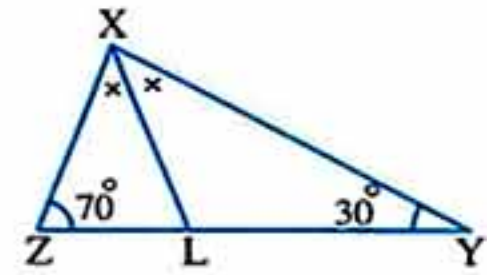
## Geometry

3 [a] In the opposite figure :

$\overline{XL}$  bisects  $\angle YXZ$  ,  $m(\angle Y) = 30^\circ$   
 $m(\angle Z) = 70^\circ$

1 Find :  $m(\angle LXZ)$  and  $m(\angle XLZ)$

2 Prove that :  $\triangle XLZ$  is an isosceles triangle.

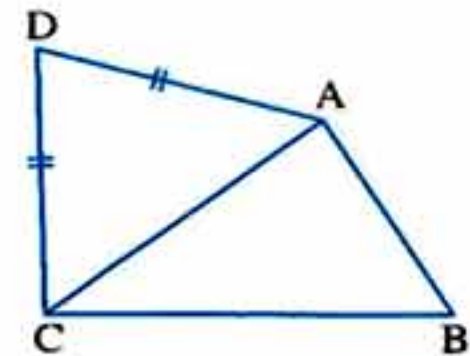


[b] In the opposite figure :

ABCD is a quadrilateral

,  $AD = DC$  ,  $BC > AB$

Prove that :  $m(\angle BAD) > m(\angle BCD)$



4 [a] In the opposite figure :

X is the midpoint of  $\overline{AC}$  ,  $AB = 8$  cm.

, Y is the midpoint of  $\overline{BC}$  ,  $AM = 5$  cm. ,  $BX = 6$  cm.

Find : The perimeter of  $\triangle XMY$

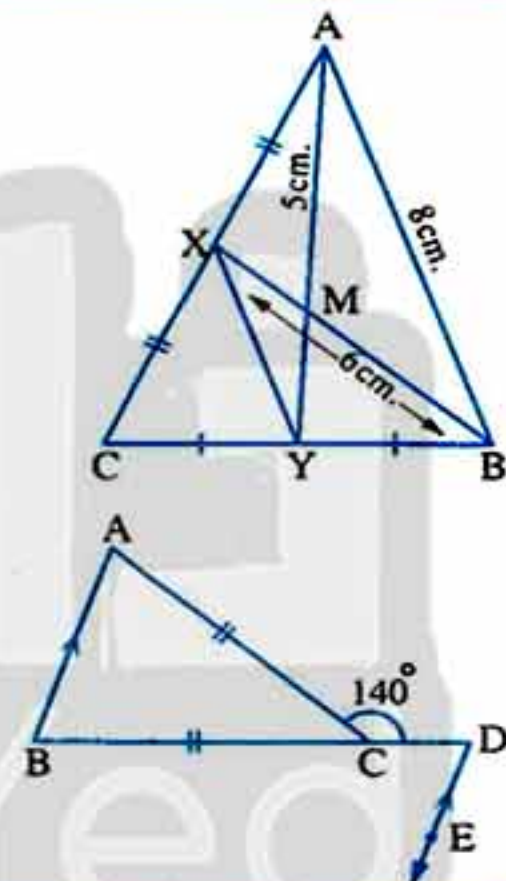
[b] In the opposite figure :

$C \in \overline{BD}$  ,  $CA = CB$

,  $\overline{AB} \parallel \overline{DE}$

,  $m(\angle ACD) = 140^\circ$

Find :  $m(\angle A)$  and  $m(\angle BDE)$



5 [a] In the opposite figure :

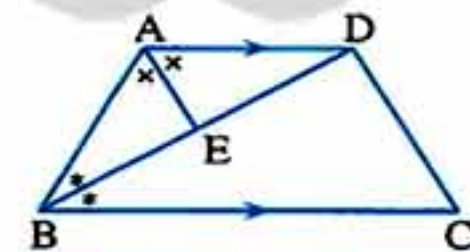
ABCD is a quadrilateral ,  $\overline{AD} \parallel \overline{BC}$

,  $\overline{BD}$  bisects  $\angle ABC$

,  $\overline{AE}$  bisects  $\angle BAD$

Prove that : 1  $AD = AB$

2  $\overline{AE} \perp \overline{BD}$



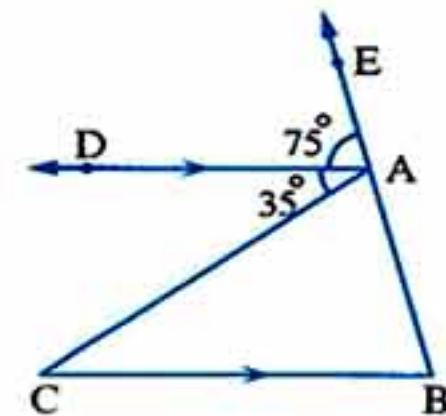
[b] In the opposite figure :

$E \in \overline{BA}$  ,  $\overline{AD} \parallel \overline{BC}$

,  $m(\angle DAE) = 75^\circ$

,  $m(\angle DAC) = 35^\circ$

Prove that :  $BC > AB$



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El-Monofia Governorate

El-Shohadea Directorate  
Maths Supervision

Answer the following questions :

1 Choose the correct answer :

- 1 The intersecting point of the medians of the triangle divides each median in the ratio of ..... from its base.  
(a) 1 : 2 (b) 2 : 1 (c) 3 : 1 (d) 1 : 3
- 2 The number of symmetry axes of the isosceles triangle is .....  
(a) 1 (b) 2 (c) 3 (d) 4
- 3 The sum of lengths of any two sides of a triangle ..... the length of the third side.  
(a) < (b) > (c) = (d) =
- 4 The diagonals are perpendicular in the .....  
(a) trapezium. (b) parallelogram. (c) square. (d) rectangle.
- 5 If  $\Delta ABC$  is right-angled at B ,  $AB = 6$  cm. ,  $BC = 8$  cm. , then the length of the median drawn from B equals ..... cm.  
(a) 3 (b) 4 (c) 5 (d) 6
- 6 If 4 cm. ,  $(X + 3)$  cm. and 8 cm. are side lengths of an isosceles triangle , then  $X =$  .....  
(a) 3 (b) 4 (c) 5 (d) 6

2 Complete each of the following :

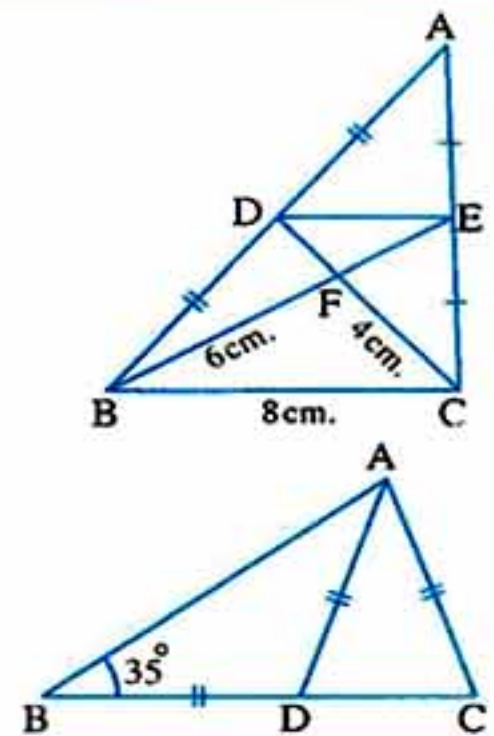
- 1 The base angles in an isosceles triangle are .....
- 2 If  $m(\angle A) = 100^\circ$  , then  $m(\text{reflex } \angle A) = \dots\dots\dots^\circ$
- 3 The number of medians of the isosceles triangle is .....
- 4 In  $\Delta ABC$  , if  $AB > BC$  , then  $m(\angle A) \dots\dots\dots m(\angle C)$
- 5 The bisector of the vertex angle of an isosceles triangle bisects the base and .....

3 [a] In the opposite figure :

$ABC$  is a triangle in which D , E are the midpoints of  $\overline{AB}$  ,  $\overline{AC}$   
 ,  $FC = 4$  cm. ,  $FB = 6$  cm. and  $BC = 8$  cm.

Find : The perimeter of  $\Delta DFE$ 

[b] In the opposite figure :

 $AC = AD = BD$ ,  $m(\angle B) = 35^\circ$ Find :  $m(\angle BAC)$ 

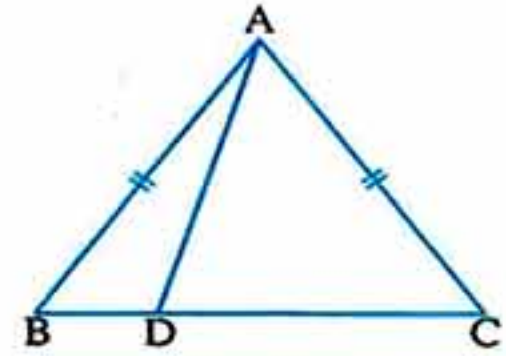
## Geometry

4 [a] In the opposite figure :

$$AC = AB$$

Prove that :

$$AB > AD$$



[b] ABC is a triangle in which  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 80^\circ$  Arrange the lengths of the sides of the triangle descendingly.

5 In the opposite figure :

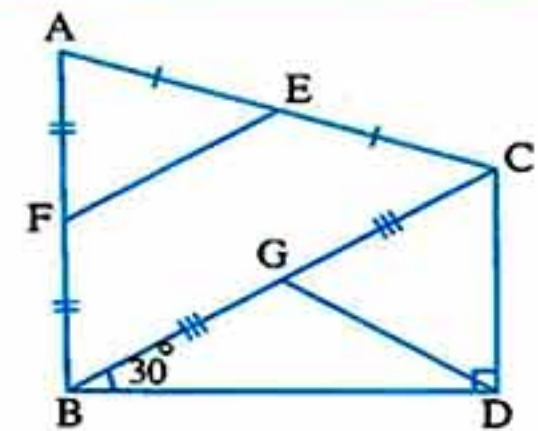
F , E , G are the midpoints of  $\overline{AB}$  ,  $\overline{AC}$  ,  $\overline{BC}$

$$, m(\angle BDC) = 90^\circ , m(\angle CBD) = 30^\circ$$

$$, BC = 10 \text{ cm.}$$

1 Prove that :  $FE = DC = GD$

2 Find : The perimeter of  $\triangle GCD$



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El-Dakahlia Governorate

Talkha Educational Directorate  
A.M.D.L School



Answer the following questions :

1 Choose the correct answer from the given ones :

1 The numbers 4 ,  $x + 4$  , 8 can be lengths of sides of an isosceles triangle if  $x = \dots\dots\dots$

- (a) 4 (b) 0 (c) 3 (d) 8

2 In  $\triangle LMN$  , if  $m(\angle M) = 55^\circ$  ,  $m(\angle N) = 80^\circ$  , then  $LM \dots\dots\dots MN$

- (a) < (b) > (c) = (d) twice

3 The measure of the exterior angle of the equilateral triangle equals  $\dots\dots\dots$

- (a)  $30^\circ$  (b)  $60^\circ$  (c)  $90^\circ$  (d)  $120^\circ$

4 If  $\overline{AD}$  is a median of  $\triangle ABC$  , and M is the point of concurrence of the medians , then  $AD = \dots\dots\dots AM$

- (a)  $\frac{1}{3}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{2}$  (d)  $\frac{3}{2}$

5 The base angles of the isosceles triangle are  $\dots\dots\dots$

- (a) alternate (b) corresponding (c) congruent (d) supplementary

6 If  $XA = XB$  ,  $YA = YB$  , then  $\overline{XY} \dots\dots\dots \overline{AB}$

- (a)  $\perp$  (b)  $\equiv$  (c)  $\parallel$  (d) =

## 2 Complete the following :

- 1 The number of axes of symmetry of the isosceles triangle is .....
- 2 The bisector of the vertex angle of the isosceles triangle .....
- 3 The medians of the triangle intersect at .....
- 4 The longest side in the right-angled triangle is the .....
- 5 In  $\triangle ABC$  , if  $AB = AC$  ,  $m(\angle C) = 40^\circ$  , then  $m(\angle A) = \dots\dots\dots^\circ$

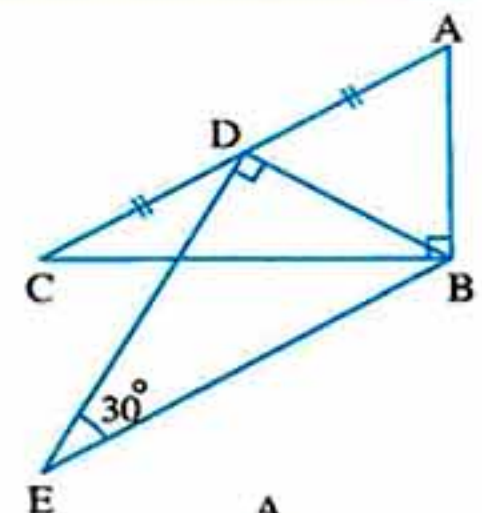
## 3 [a] In the opposite figure :

$$m(\angle ABC) = m(\angle BDE) = 90^\circ$$

$$, m(\angle E) = 30^\circ$$

, D is the midpoint of  $\overline{AC}$

Prove that :  $AC = BE$

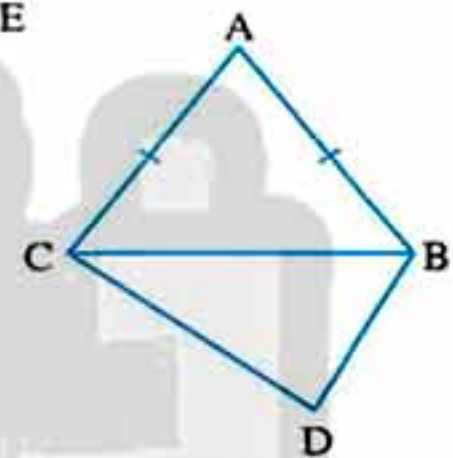


## [b] In the opposite figure :

$$AB = AC , DC > DB$$

Prove that :

$$m(\angle ABD) > m(\angle ACD)$$

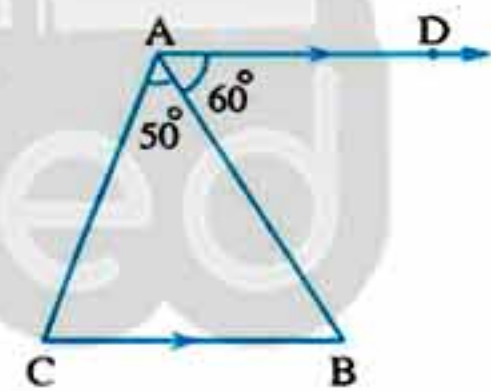


## 4 [a] In the opposite figure :

ABC is a triangle ,  $\overrightarrow{AD} \parallel \overrightarrow{CB}$

$$, m(\angle DAB) = 60^\circ , m(\angle BAC) = 50^\circ$$

Prove that :  $AB > AC$



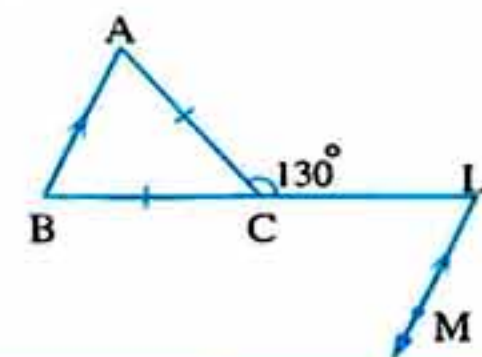
## [b] In the opposite figure :

$$C \in \overrightarrow{LB} , AC = BC$$

$$, m(\angle LCA) = 130^\circ$$

$$, \overrightarrow{LM} \parallel \overrightarrow{AB}$$

Find :  $m(\angle MLC)$



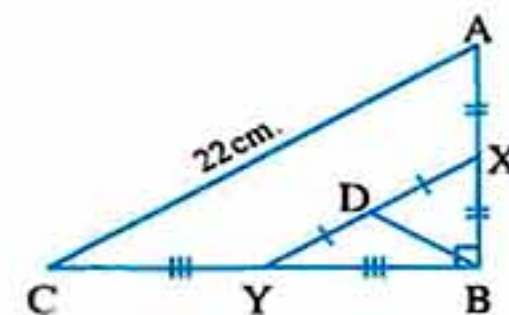
## 5 [a] In the opposite figure :

$$m(\angle ABC) = 90^\circ , X , Y , D$$

are the midpoints of  $\overline{AB} , \overline{BC} , \overline{XY}$

respectively , if  $AC = 22 \text{ cm}$ .

, find :  $BD$

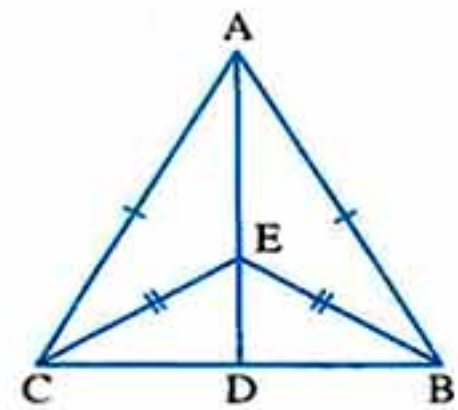


## Geometry

[b] In the opposite figure :

$$AB = AC, EB = EC$$

Prove that :  $BD = CD$



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Suez Governorate

Directorate of Education  
Inspection of Mathematics



Answer the following questions :

1 Complete :

- 1 The base angles in an isosceles triangle are .....
- 2 If the angles of a triangle are congruent, then the triangle is .....
- 3 In  $\triangle ABC$ , if  $m(\angle A) = 70^\circ$ ,  $m(\angle B) = 50^\circ$ , then the longest side is .....
- 4 The point of concurrence of the medians of the triangle divides each median in the ratio of ..... from its vertex.
- 5 In  $\triangle ABC$ , if  $m(\angle A) = 30^\circ$  and  $m(\angle B) = 90^\circ$ , then  $AC = \dots\dots\dots BC$

2 Choose the correct answer :

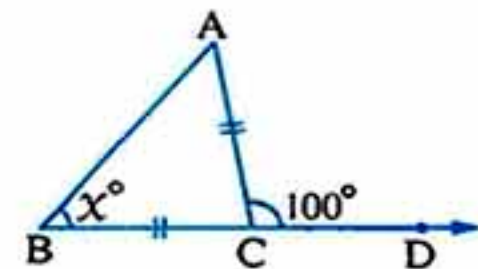
- 1 The triangle which has three axes of symmetry is .....  
(a) scalene. (b) isosceles. (c) right-angled. (d) equilateral.
- 2 If the lengths of two sides in an isosceles triangle are 3 cm. and 7 cm., then the length of the third side equals ..... cm.  
(a) 3 (b) 4 (c) 6 (d) 7
- 3 XYZ is a triangle in which  $m(\angle Z) = 70^\circ$  and  $m(\angle Y) = 60^\circ$ , then  $YZ \dots\dots\dots XY$   
(a)  $>$  (b)  $<$  (c)  $=$  (d) twice

4 In the opposite figure :

$$CA = CB, m(\angle B) = x^\circ$$

$$m(\angle ACD) = 100^\circ \text{ where } C \in \overline{BD}$$

, then  $x = \dots\dots\dots$



- (a)  $50^\circ$  (b)  $100^\circ$  (c)  $150^\circ$  (d)  $200^\circ$
- 5 In  $\triangle ABC$ , if  $AB = AC$  and  $\overline{AD}$  is a median, then  $\overline{AD} \dots\dots\dots \overline{BC}$   
(a)  $\equiv$  (b)  $\perp$  (c)  $\subset$  (d)  $//$
- 6 In  $\triangle ABC$ , if  $AB = 3$  cm.,  $BC = 5$  cm., then  $AC \in \dots\dots\dots$   
(a)  $]2, 8[$  (b)  $]2, 7[$  (c)  $]2, 15[$  (d)  $]8, 15[$

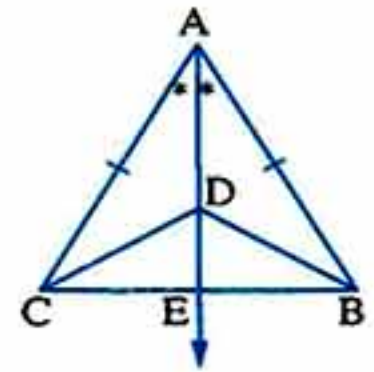
## Final Examinations

- 3 [a] ABC is a triangle in which  $m(\angle A) = 40^\circ$ ,  $m(\angle B) = 75^\circ$  Arrange the lengths of sides of the triangle descendingly.

[b] In the opposite figure :

$AB = AC$ ,  $\overline{AE}$  bisects  $\angle BAC$   
 $\overline{AE} \cap \overline{BC} = \{E\}$ ,  $D \in \overline{AE}$

Prove that :  $BD = CD$



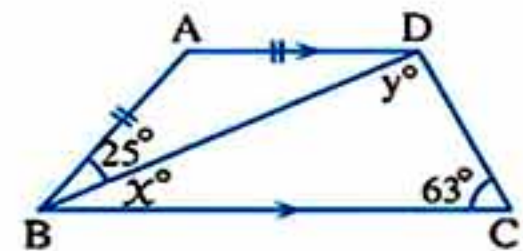
- 4 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$ ,  $AD = AB$

$m(\angle ABD) = 25^\circ$ ,  $m(\angle C) = 63^\circ$

$m(\angle DBC) = x^\circ$ ,  $m(\angle CDB) = y^\circ$

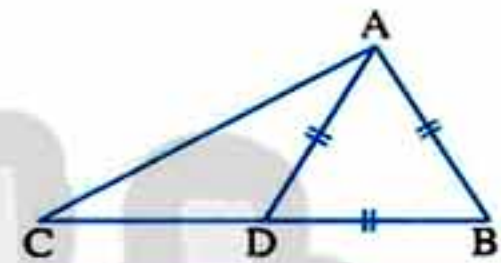
Find the value of each of :  $x$  and  $y$



[b] In the opposite figure :

$AB = BD = DA$

Prove that :  $BC > AC$



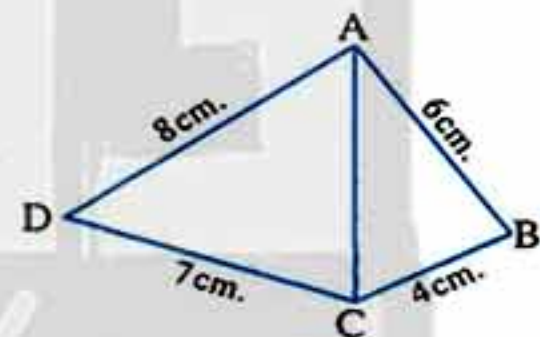
- 5 [a] In the opposite figure :

ABCD is a quadrilateral

$AB = 6$  cm.,  $BC = 4$  cm.

$CD = 7$  cm.,  $AD = 8$  cm.

Prove that :  $m(\angle BCD) > m(\angle BAD)$



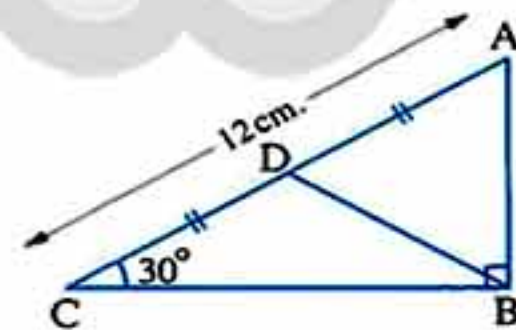
[b] In the opposite figure :

ABC is a triangle,  $m(\angle ABC) = 90^\circ$

D is the midpoint of  $\overline{AC}$

$AC = 12$  cm.,  $m(\angle C) = 30^\circ$

then find : The perimeter of  $\triangle ABD$



13

El-Beheira Governorate

Damanhur Directorate  
Al-Ferabi Language School

Answer the following questions :

- 1 Complete the following :

- 1 The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals ..... the length of the hypotenuse.

## Geometry

- 2 If  $\overline{AD}$  is a median in  $\triangle ABC$ ,  $M$  is the point of intersection of its medians and  $AM = 12$  cm., then  $AD = \dots\dots\dots$
- 3 The number of axes of symmetry of the isosceles triangle equals  $\dots\dots\dots$
- 4 In a triangle, if two angles are unequal in measure, then the greater angle in measure is opposite to  $\dots\dots\dots$
- 5 If  $\overline{AB} \equiv \overline{XY}$  and  $AB = 5$  cm., then  $2AB - XY = \dots\dots\dots$

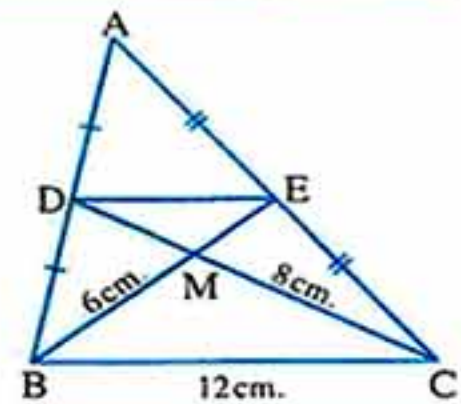
## 2 Choose the correct answer :

- 1 The measure of one of the base angles in the isosceles triangle is  $65^\circ$ , then the measure of its vertex angle equals  $\dots\dots\dots^\circ$   
 (a) 65 (b) 50 (c) 130 (d) 55
- 2 If 4 cm.,  $(X + 3)$  cm. and 8 cm. are side lengths of an isosceles triangle, then  $X = \dots\dots\dots$   
 (a) 4 (b) 3 (c) 5 (d) 8
- 3 If  $\triangle ABC$  is right-angled at  $B$ ,  $AB = 6$  cm.,  $BC = 8$  cm., then the length of the median drawn from  $B$  equals  $\dots\dots\dots$  cm.  
 (a) 10 (b) 8 (c) 6 (d) 5
- 4 The diagonals are perpendicular in the  $\dots\dots\dots$   
 (a) trapezium. (b) parallelogram. (c) square. (d) triangle.
- 5 The point of concurrence of the medians of the triangle divides each median in the ratio of  $\dots\dots\dots$  from the base.  
 (a) 1 : 2 (b) 1 : 3 (c) 2 : 1 (d) 3 : 1
- 6 The acute angle supplements  $\dots\dots\dots$  angle.  
 (a) an acute (b) an obtuse (c) a right (d) a reflex

## 3 [a] In the opposite figure :

$\overline{BE}$ ,  $\overline{CD}$  are medians in  $\triangle ABC$   
 $MB = 6$  cm.,  $MC = 8$  cm.,  
 $BC = 12$  cm.

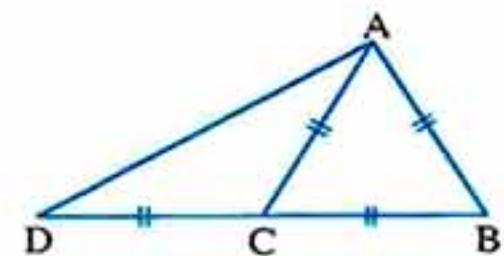
Find : The perimeter of  $\triangle MDE$



## [b] In the opposite figure :

$AB = BC = AC = DC$

Prove that :  $m(\angle BAD) = 90^\circ$



## Final Examinations

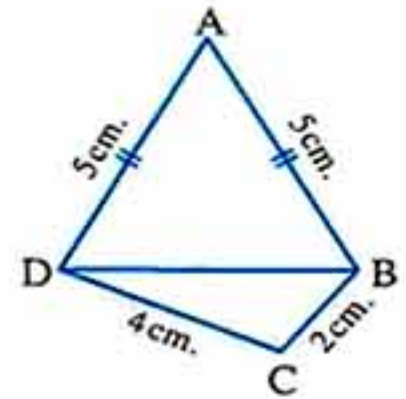
4 [a] In the opposite figure :

ABCD is a quadrilateral in which  $AB = AD = 5$  cm.

,  $BC = 2$  cm. ,  $DC = 4$  cm.

Prove that :

$m(\angle ABC) > m(\angle ADC)$

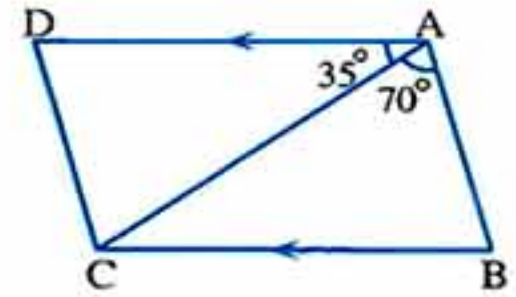


[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle BAC) = 70^\circ$

and  $m(\angle DAC) = 35^\circ$

Prove that :  $AC > BC$

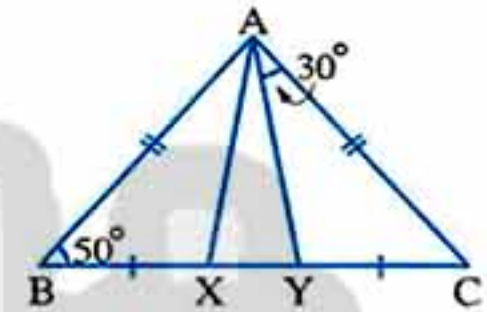


5 In the opposite figure :

ABC is a triangle in which

$AB = AC$  ,  $BX = CY$

If  $m(\angle B) = 50^\circ$  ,  $m(\angle CAY) = 30^\circ$



1 Prove that : AYX is an isosceles triangle.

2 Find :  $m(\angle AXY)$

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El-Menia Governorate

El-Menia Directorate of Education  
Kafr El-Mansoura Formal Language School



Answer the following questions :

1 Choose the correct answer :

1 The triangle in which the measures of two angles of it are  $42^\circ$  and  $69^\circ$  is .....

(a) an isosceles triangle.

(b) an equilateral triangle.

(c) a scalene triangle.

(d) a right-angled triangle.

2 In  $\triangle ABC$  which is right-angled at B , if  $AC = 20$  cm. , then the length of the median drawn from B equals .....

(a) 10 cm.

(b) 8 cm.

(c) 6 cm.

(d) 5 cm.

3 In  $\triangle ABC$  , if  $m(\angle B) = 130^\circ$  , then the longest side of it is .....

(a)  $\overline{BC}$

(b)  $\overline{AC}$

(c)  $\overline{AB}$

(d) its median.

4 The two angles are said to be supplementary if the sum of their measures is .....

(a) zero°

(b) 90°

(c) 180°

(d) 360°

## Geometry

- 5 The lengths which can be lengths of sides of a triangle are .....
- (a) (0 , 3 , 5)      (b) (3 , 3 , 5)      (c) (3 , 3 , 6)      (d) (3 , 3 , 7)
- 6  $\Delta XYZ$  is an isosceles triangle in which  $m(\angle X) = 100^\circ$ , then  $m(\angle Y) = \dots\dots\dots$
- (a)  $100^\circ$       (b)  $80^\circ$       (c)  $60^\circ$       (d)  $40^\circ$

## 2 Complete :

- 1 The sum of measures of the accumulative angles at a point is ..... $^\circ$
- 2 The ray drawn from the midpoint of a side of a triangle parallel to another side ..... the third side.
- 3 If the measure of an angle in an isosceles triangle equals  $60^\circ$ , then the triangle is .....
- 4 The point of concurrence of the medians of the triangle divides each median in the ratio of ..... from the base.
- 5 In  $\Delta ABC$ ,  $m(\angle B) = 70^\circ$ ,  $m(\angle C) = 50^\circ$ , then  $AC \dots\dots\dots AB$

## 3 [a] In the opposite figure :

$$\overline{AB} \cap \overline{CD} = \{M\}, \overline{AC} \perp \overline{CD}, \overline{BD} \perp \overline{CD}$$

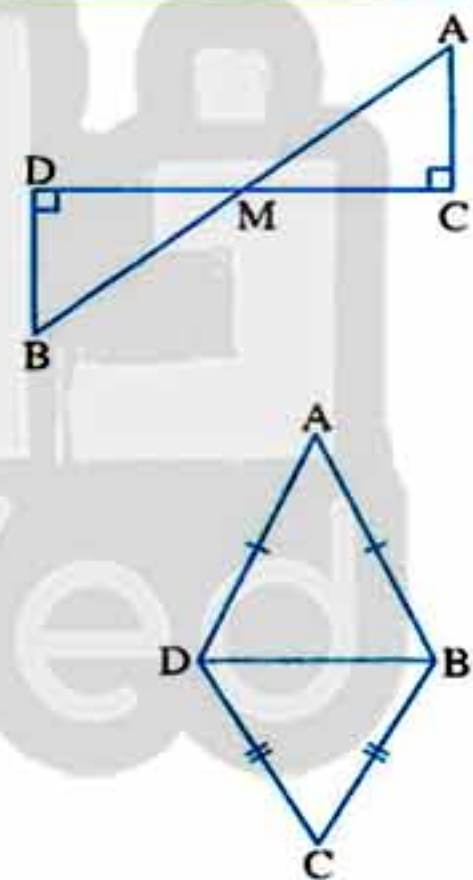
Prove that :  $AB > CD$

## [b] In the opposite figure :

$$AB = AD, BC = CD$$

Prove that :

$$m(\angle ABC) = m(\angle ADC)$$



## 4 [a] In the opposite figure :

$$AB > BC, \overline{XY} \parallel \overline{BC}$$

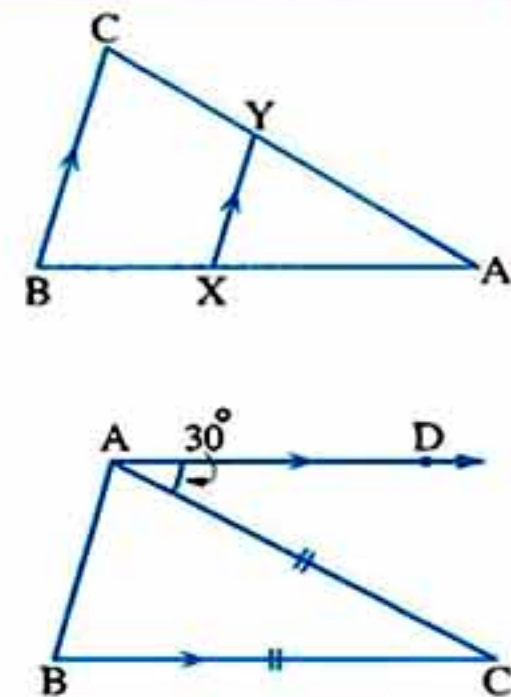
Prove that :  $AX > XY$

## [b] In the opposite figure :

ABC is a triangle in which  $AC = BC$ ,  $\overline{AD} \parallel \overline{BC}$ ,  $m(\angle DAC) = 30^\circ$

Find with proof :

The measures of the angles of  $\Delta ABC$



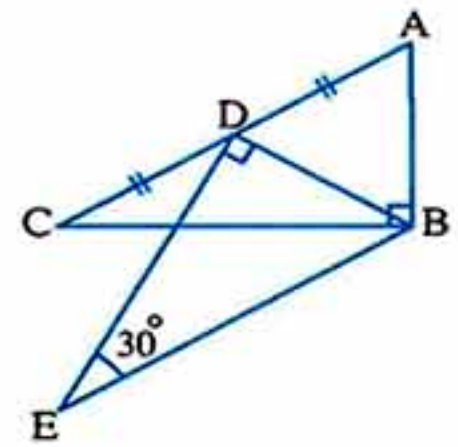
5 [a] In the opposite figure :

$$m(\angle ABC) = m(\angle BDE) = 90^\circ$$

$$, m(\angle E) = 30^\circ$$

, D is the midpoint of  $\overline{AC}$

Prove that :  $AC = BE$



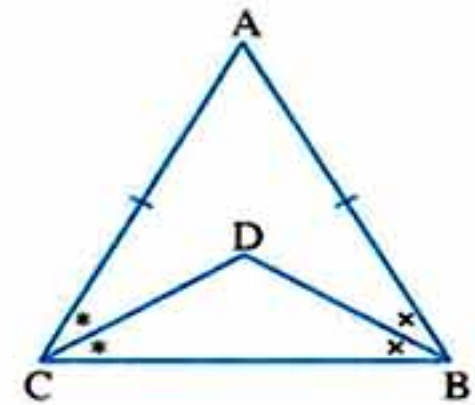
[b] In the opposite figure :

$AB = AC$  ,  $\overline{BD}$  bisects  $\angle ABC$

and  $\overline{CD}$  bisects  $\angle ACB$

Prove that :

$\triangle DBC$  is isosceles.



15

Qena Governorate

Qena Directorate of Education  
Math's Supervision

Answer the following questions :

1 Complete each of the following :

- 1 The number of axes of symmetry of the equilateral triangle equals .....
- 2 In the triangle ABC , if  $AC = BC$  and  $m(\angle C) = 80^\circ$  , then  $m(\angle A) = \dots\dots\dots^\circ$
- 3 XYZ is a triangle ,  $m(\angle X) = 60^\circ$  ,  $m(\angle Y) = 40^\circ$  , then  $XZ \dots\dots\dots ZY$
- 4 The point of intersection of the medians of the triangle divides each of them with the ratio of ..... from the vertex.
- 5 The perpendicular bisector of a line segment is called .....

2 Choose the correct answer from those given :

- 1 The lengths 9 cm. , 4 cm. and ..... may be the side lengths of an isosceles triangle.  
(a) 9 cm. (b) 13 cm. (c) 5 cm. (d) 4 cm.
- 2  $\overline{AD}$  is a median of  $\triangle ABC$  , and M is the point of concurrence of the medians , then  $AM = \dots\dots\dots AD$   
(a)  $\frac{2}{3}$  (b)  $\frac{1}{2}$  (c)  $\frac{3}{2}$  (d) 2
- 3 The measure of the exterior angle of an equilateral triangle equals .....  
(a)  $30^\circ$  (b)  $60^\circ$  (c)  $120^\circ$  (d)  $90^\circ$

## Geometry

4 In the triangle ABC , if  $m(\angle B) = 90^\circ$  , then the greatest side in length is .....

- (a)  $\overline{AB}$  (b)  $\overline{AC}$  (c)  $\overline{CB}$  (d)  $\overline{XY}$

5 In  $\triangle XYZ$  , if  $XY > ZX$  , then  $m(\angle Y)$  .....  $m(\angle Z)$

- (a)  $>$  (b)  $<$  (c)  $=$  (d)  $\equiv$

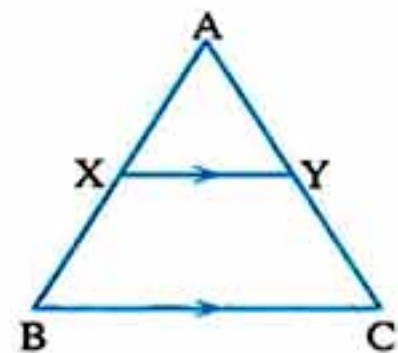
3 [a] In the opposite figure :

ABC is a triangle in which  $AB = AC$

,  $\overline{XY} \parallel \overline{BC}$

Prove that :

$\triangle AXY$  is an isosceles triangle.



[b] In  $\triangle ABC$  ,  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 75^\circ$  Arrange the lengths of sides of  $\triangle ABC$  in an ascending order.

4 [a] In the opposite figure :

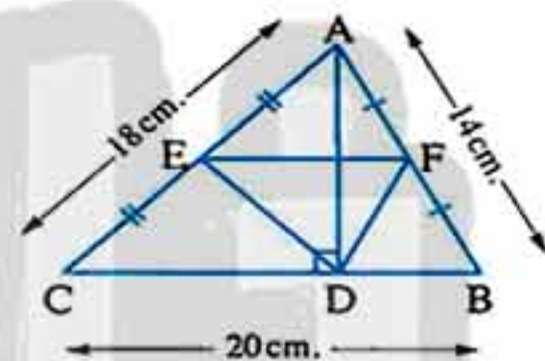
ABC is a triangle in which  $AB = 14$  cm.

,  $AC = 18$  cm. ,  $BC = 20$  cm.

, E is the midpoint of  $\overline{AC}$

, F is the midpoint of  $\overline{AB}$  , and  $\overline{AD} \perp \overline{BC}$

Find : The perimeter of  $\triangle DEF$



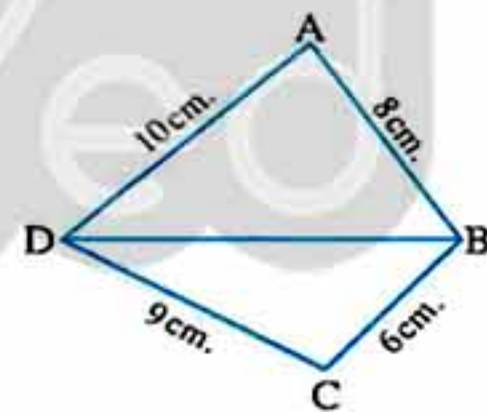
[b] In the opposite figure :

ABCD is a quadrilateral in which  $AB = 8$  cm.

,  $BC = 6$  cm. ,  $CD = 9$  cm.

and  $DA = 10$  cm.

Prove that :  $m(\angle ABC) > m(\angle ADC)$

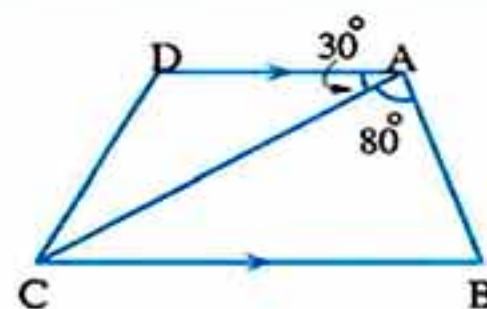


5 [a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle BAC) = 80^\circ$

,  $m(\angle DAC) = 30^\circ$

Prove that :  $BC > AB$



[b] Complete : In  $\triangle ABC$  , if  $AB = 7$  cm. ,  $AC = 5$  cm. , then .....  $< BC <$  .....

Final  
Examinations of

Geometry  
2019



## Some Schools Examinations on Geometry

1

Cairo Governorate

East Nasr city administration  
Heliopolis Language School  
Mathematics Department

Answer the following questions :

## 1 Complete :

- (1) The intersection point of the three medians of the triangle divide the median in the ratio ..... from the vertex.
- (2) In  $\triangle ABC$  : If  $CA = CB$  and  $m(\angle C) = m(\angle A)$  , then  $m(\angle B) = \dots\dots\dots^\circ$
- (3) The bisector of the vertex angle of the isosceles triangle is ..... and .....
- (4) If the measure of an angle in the isosceles triangle is  $100^\circ$  , then the number of axes of symmetry of  $\triangle ABC$  is .....
- (5) The longest side in the right-angled triangle is .....

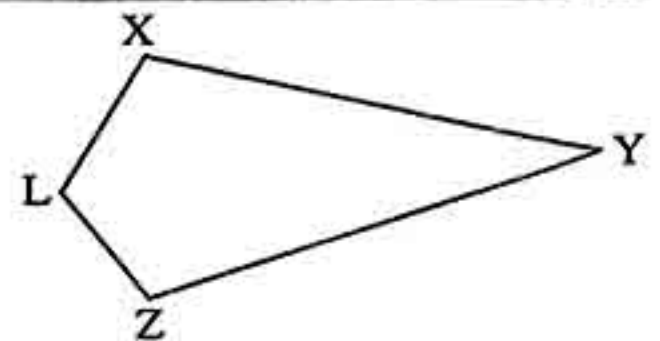
## 2 Choose the correct answer :

- (1) In  $\triangle ABC$  : If  $m(\angle B) = 90^\circ$  , then .....  
 (a)  $AC > CB$       (b)  $AB > AC$       (c)  $BC > AC$       (d)  $AB = AC$
- (2) If the lengths of two sides of an isosceles triangle are 3 cm. and 7 cm. , then the length of the third side is .....  
 (a) 3      (b) 4      (c) 7      (d) 10
- (3) In  $\triangle ABC$  : If  $AB = AC$  and  $m(\angle A) = 60^\circ$  , then the number of axes of symmetry of the triangle ABC is .....  
 (a) 0      (b) 1      (c) 2      (d) 3
- (4) Any triangle has ..... medians.  
 (a) 0      (b) 1      (c) 2      (d) 3
- (5) If ABCD is a square , then the axes of symmetry of  $\overline{AC}$  is .....  
 (a)  $\overrightarrow{AD}$       (b)  $\overrightarrow{BC}$       (c)  $\overrightarrow{BD}$       (d)  $\overrightarrow{AB}$

## 3 [a] In the opposite figure :

$XY > XL$

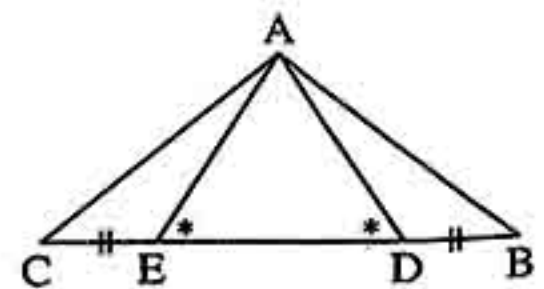
and  $YZ > ZL$

Prove that :  $m(\angle XLZ) > m(\angle XYZ)$ 

## [b] In the opposite figure :t

$\angle ADC \equiv \angle AED$  and  $BD = CE$

, B , D , E and C are collinear.

Prove that :  $\triangle ABC$  is an isosceles triangle.

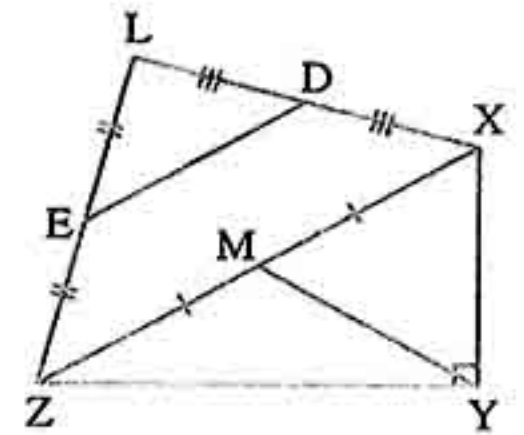
4 [a] In the opposite figure :

$$m(\angle XYZ) = 90^\circ$$

, D is midpoint of  $\overline{XL}$

, E is midpoint of  $\overline{ZL}$  and M is the midpoint of  $\overline{XZ}$

Prove that :  $DE = YM$



[b] In the opposite figure :

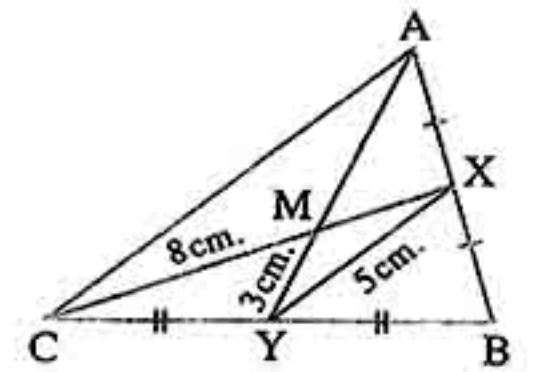
ABC is a triangle , X is the midpoint of  $\overline{AB}$

, Y is midpoint of  $\overline{BC}$  ,  $XY = 5$  cm. and  $\overline{XC} \cap \overline{AY} = \{M\}$

where  $CM = 8$  cm. ,  $YM = 3$  cm.

Find : (1) The perimeter of  $\triangle MXY$

(2) The perimeter of  $\triangle MAC$



5 [a] In the opposite figure :

$AC > AB$  and  $DB = DC$

Prove that :  $m(\angle ABD) > m(\angle ACD)$

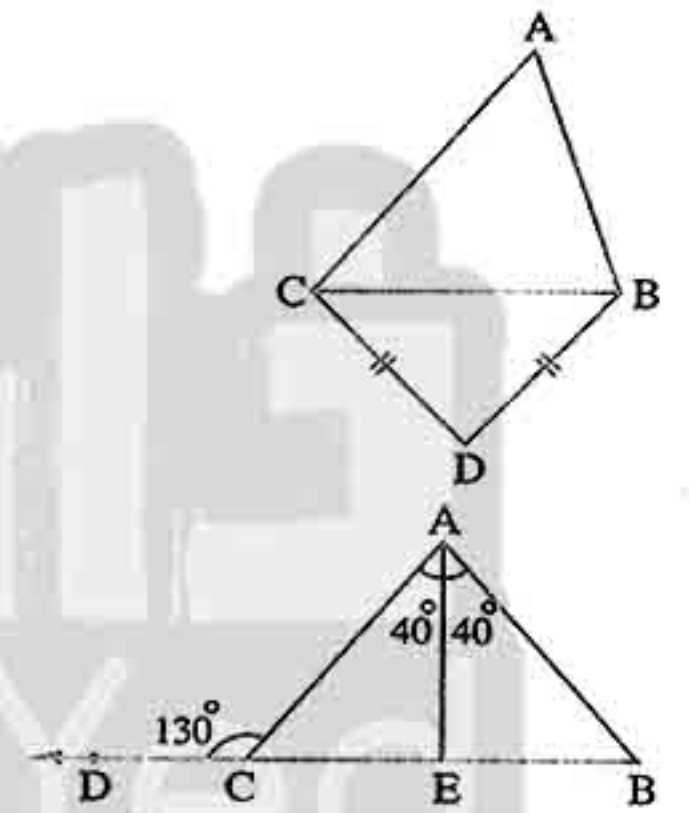
[b] In the opposite figure :

$C \in \overline{BD}$  ,  $m(\angle ACD) = 130^\circ$

and  $m(\angle BAE) = m(\angle CAE) = 40^\circ$

Prove that : (1)  $\overline{AE} \perp \overline{BC}$

(2) E bisects  $\overline{BC}$



2

Cairo Governorate

Maadi Educational Zone  
Sakkara Language School



Answer the following questions :

1 Complete :

(1) In  $\triangle XYZ$  ,  $m(\angle X) = 90^\circ$  , then the longest side is .....

(2) The base angles of the isosceles triangle are .....

(3) ABC is a triangle in which  $AB = 4$  cm. ,  $CB = 7$  cm. , then  $AC \in ]....., .....[$

(4) If A  $\in$  the axis of symmetry of  $\overline{XY}$  , then ..... = .....

(5) If the measure of an angle in the isosceles triangle equals  $60^\circ$  , then the triangle has ..... axes of symmetry.

## Geometry

## 2 Choose the correct answer :

- (1) The measure of the exterior angle of equilateral triangle = .....
- (a)  $90^\circ$  (b)  $120^\circ$  (c)  $45^\circ$  (d)  $60^\circ$
- (2) If  $\overline{AD}$  is a median in  $\triangle ABC$  and M is the point of intersection of the medians, then  $AM = \dots\dots\dots AD$
- (a)  $\frac{1}{3}$  (b)  $\frac{2}{3}$  (c)  $\frac{3}{2}$  (d)  $\frac{1}{2}$
- (3) In  $\triangle XYZ$ , if  $m(\angle Z) = 70^\circ$  and  $m(\angle Y) = 60^\circ$ , then  $YZ \dots\dots\dots XY$
- (a)  $<$  (b)  $=$  (c)  $>$  (d) is twice
- (4) The numbers 4, 8, ..... can be lengths of sides of an isosceles triangle.
- (a) 4 (b) 8 (c) 12 (d) 3
- (5) In  $\triangle ABC$ , if  $m(\angle B) = 90^\circ$  and  $m(\angle C) = 30^\circ$ , then  $AB \dots\dots\dots AC$
- (a)  $\frac{1}{3}$  (b) 2 (c) equals (d)  $\frac{1}{2}$

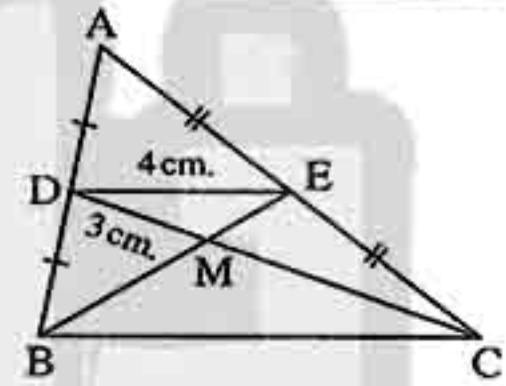
## 3 [a] In the opposite figure :

D is the midpoint of  $\overline{AB}$ , E is the midpoint of  $\overline{AC}$

$\overline{CD} \cap \overline{BE} = \{M\}$

If  $DE = 4$  cm,  $DM = 3$  cm,  $BE = 6$  cm.

Find : The perimeter of  $\triangle BMC$



- [b] In  $\triangle ABC$ , if  $AB = 5$  cm,  $BC = 7$  cm, and  $AC = 9$  cm.  
Arrange the measures of its angles in a descending order.

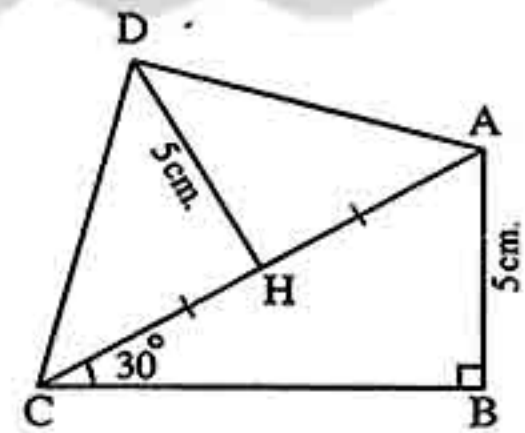
## 4 [a] In the opposite figure :

$ABC$  is a right angled triangle at B

$m(\angle ACB) = 30^\circ$ ,  $AB = 5$  cm.

$DH = 5$  cm, and H is the midpoint of  $\overline{AC}$

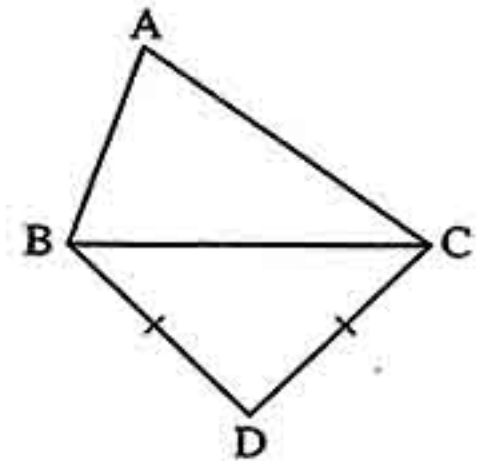
Prove that :  $m(\angle ADC) = 90^\circ$



## [b] In the opposite figure :

If  $AC > AB$  and  $DC = DB$

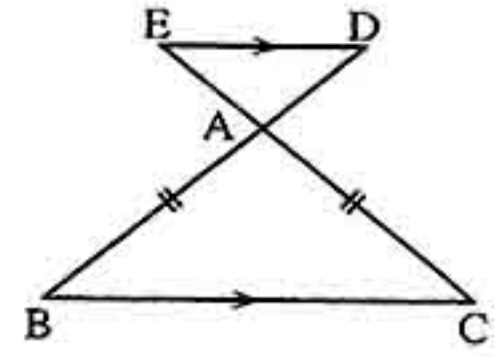
Prove that :  $m(\angle ABD) > m(\angle ACD)$



5 [a] In the opposite figure :

If  $AB = AC$

Prove that :  $AD = AE$



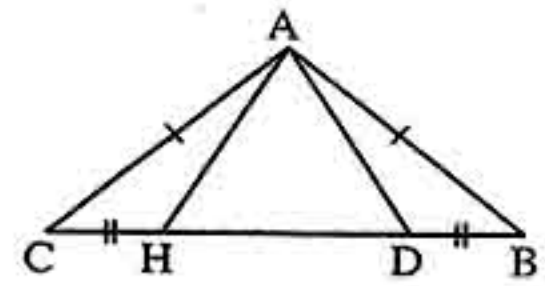
[b] In the opposite figure :

ABC is a triangle in which :

$AB = AC$  ,  $BD = CH$

Prove that : ①  $\triangle ADH$  is an isosceles triangle.

②  $\angle AHD \equiv \angle ADH$



3

Cairo Governorate

El-Sayda Zinab Educational Zone



Answer the following questions :

1 Choose the suitable answer :

- ① The number of axes of symmetry of an equilateral triangle is .....  
 (a) 0 (b) 1 (c) 2 (d) 3
- ② An isosceles triangle , one of its base angles has measure  $50^\circ$  , then the measure of the vertex angle = .....  
 (a)  $50^\circ$  (b)  $60^\circ$  (c)  $70^\circ$  (d)  $80^\circ$
- ③  $\overline{AD}$  is a median of triangle ABC , and M is the point of intersection of the medians , then  $AM = \dots\dots\dots AD$   
 (a)  $\frac{1}{3}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{2}$  (d)  $\frac{1}{4}$
- ④ If the lengths of two sides of a triangle are 4 cm. and 8 cm. , then the length of the third side = ..... cm.  
 (a) 3 (b) 4 (c) 8 (d) 12
- ⑤ In a triangle ABC , if  $m(\angle A) = 80^\circ$  and  $m(\angle C) = 60^\circ$  , then  $AB \dots\dots\dots BC$   
 (a) < (b) > (c) = (d)  $\geq$

2 Complete :

- ① If XYZ is a right-angled triangle at Y , then the longest side is .....
- ② The sum of measures of any two consecutive angles in the parallelogram = .....  $^\circ$
- ③ The straight line perpendicular to the midpoint of a line segment is called .....
- ④ The bisectors of the vertex angle of an isosceles triangle ..... and .....
- ⑤ The measure of the exterior angle of the equilateral triangle = .....  $^\circ$

## Geometry

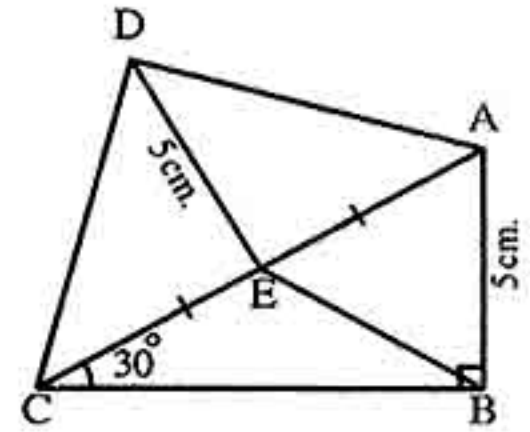
## 3 [a] In the opposite figure :

ABC is a right-angled triangle at B

,  $m(\angle ACB) = 30^\circ$  ,  $AB = 5$  cm.

, E is midpoint of  $\overline{AC}$

If  $DE = 5$  cm. then prove that :  $m(\angle ADC) = 90^\circ$



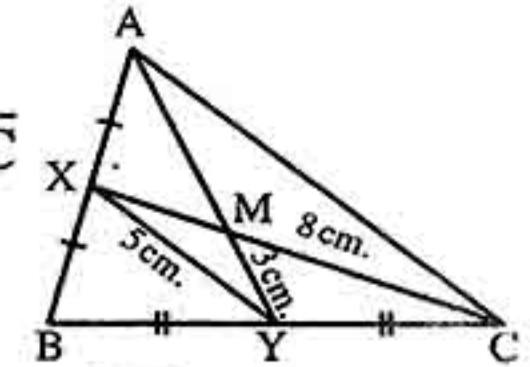
## [b] In the opposite figure :

ABC is a triangle , X is the midpoint of  $\overline{AB}$  , Y is the midpoint of  $\overline{BC}$

,  $XY = 5$  cm. ,  $\overline{XC} \cap \overline{AY} = \{M\}$

where :  $CM = 8$  cm. ,  $YM = 3$  cm.

Find with proof : The length of each of : ①  $\overline{AM}$  ②  $\overline{MX}$  ③  $\overline{AC}$

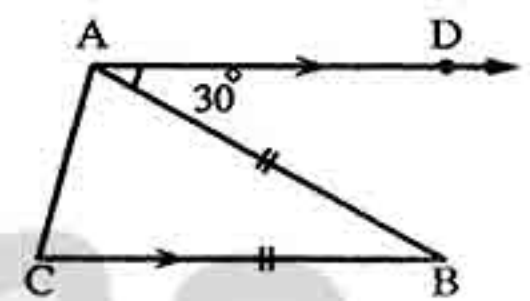


## 4 [a] In the opposite figure :

ABC is a triangle in which :  $AB = BC$  ,  $\overline{AD} \parallel \overline{BC}$

,  $m(\angle DAB) = 30^\circ$

Find : The measures of the angles of  $\triangle ABC$

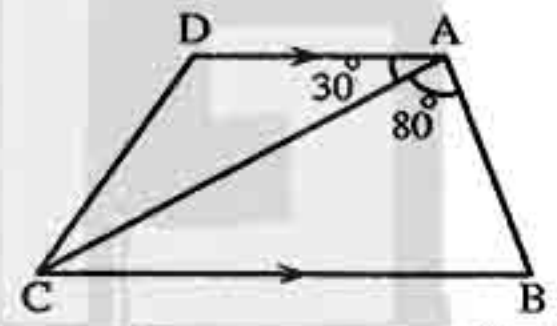


## [b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle BAC) = 80^\circ$

,  $m(\angle DAC) = 30^\circ$

Prove that :  $BC > AB$

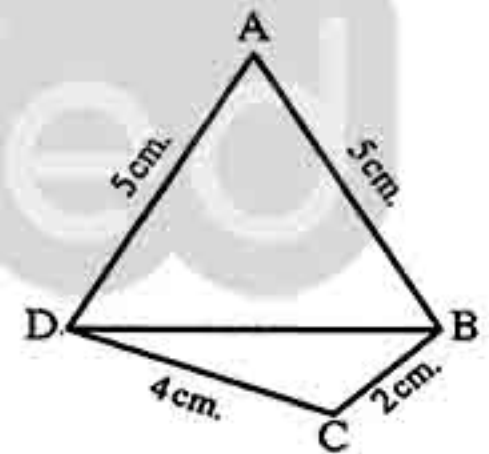


## 5 In the opposite figure :

ABCD is a quadrilateral in which :  $AB = AD = 5$  cm.

,  $BC = 2$  cm. ,  $DC = 4$  cm.

Prove that :  $m(\angle ABC) > m(\angle ADC)$



## Giza Governorate

Dokki District  
Modern Narmar Language School



## Answer the following questions :

## 1 Choose the correct answer from those given :

## ① In the opposite figure :

$\triangle ADB$  ,  $m(\angle ADB) = 90^\circ$  ,  $BD = 5$  cm.

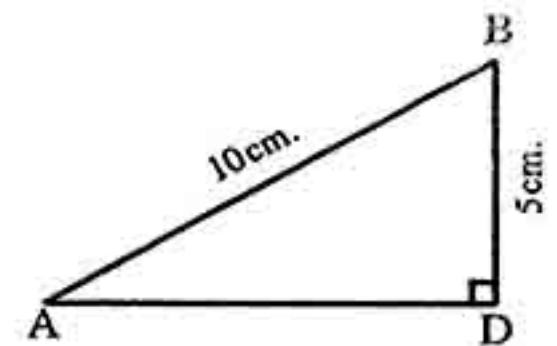
and  $AB = 10$  cm. , then  $m(\angle A) = \dots\dots\dots^\circ$

(a) 30

(b) 50

(c) 70

(d) 90



② In the opposite figure :

If  $AB = AC$  and  $BE = BC$

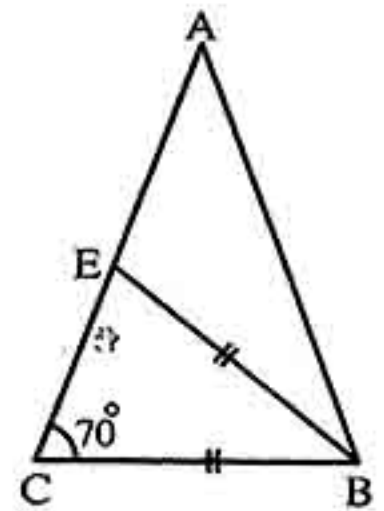
, then :  $m(\angle ABE) = \dots\dots\dots$

(a)  $30^\circ$

(b)  $40^\circ$

(c)  $70^\circ$

(d)  $110^\circ$



③ In the opposite figure :

$\triangle ABC$  ,  $AB = BC$

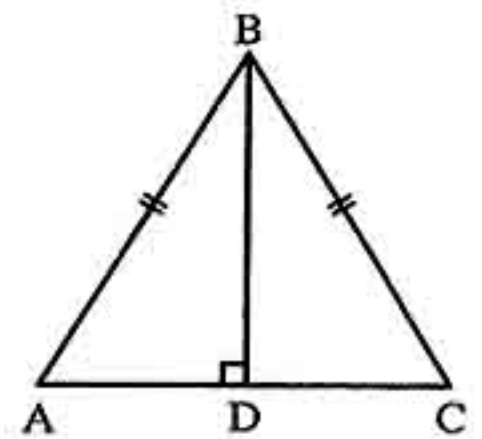
, an altitude is drawn from B to  $\overline{AC}$  and intersects  $\overline{AC}$  at D  
which conclusion is not always true ?

(a)  $m(\angle ABD) = m(\angle CBD)$

(b)  $m(\angle BDA) = m(\angle BDC)$

(c)  $AD = BD$

(d)  $AD = DC$



④ Which set of numbers represents the lengths of the sides of a triangle ?

(a)  $\{5, 18, 13\}$

(b)  $\{6, 17, 22\}$

(c)  $\{16, 24, 7\}$

(d)  $\{26, 8, 15\}$

⑤ The point of concurrency of medians divides each median in the ratio ..... from the base.

(a)  $1 : 2$

(b)  $2 : 1$

(c)  $3 : 1$

(d)  $2 : 3$

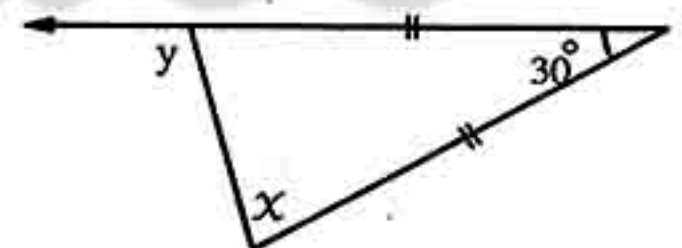
2 Complete :

① The longest side in the right-angled triangle is .....

② If the measure of an angle in the isosceles triangle equals  $60^\circ$  , then the triangle is .....

③ In the opposite figure :

$x = \dots\dots\dots^\circ$  and  $y = \dots\dots\dots^\circ$



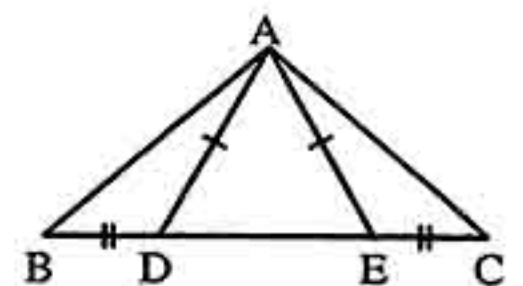
④ If the length of the median drawn from the right vertex of a triangle is 6 cm. , then the length of the hypotenuse is ..... cm.

⑤ In  $\triangle ABC$  ,  $m(\angle A) = 60^\circ$  ,  $m(\angle B) = 50^\circ$  , then the longest side is .....

3 [a] In the opposite figure :

$AD = AE$  and  $BD = CE$

Prove that :  $\triangle ABC$  is an isosceles triangle.



## Geometry

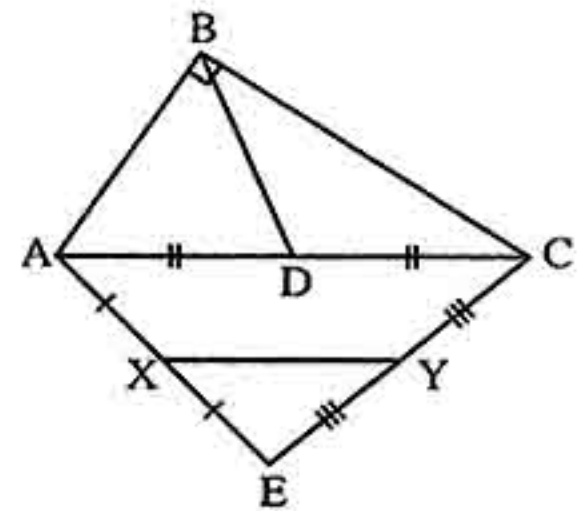
[b] In the opposite figure :

$\triangle ABC$  is right-angled at B

, D is the midpoint of  $\overline{AC}$

, X and Y are the midpoints of  $\overline{AE}$  and  $\overline{CE}$  respectively.

Prove that :  $BD = XY$



[4] [a] In the opposite figure :

$\triangle ABC$ , F and E are the midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively.

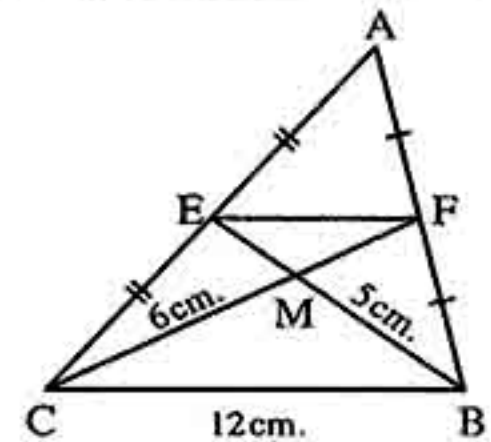
If  $BM = 5$  cm. ,  $CM = 6$  cm. ,  $BC = 12$  cm. ,

then find : The perimeter of  $\triangle MEF$

[b] In  $\triangle ABC$ ,  $m(\angle A) = 3x^\circ$ ,  $m(\angle B) = (4x - 9)^\circ$

and  $m(\angle C) = (2x + 9)^\circ$

Find the measure of each angle and arrange the sides in a descending order according to their lengths.

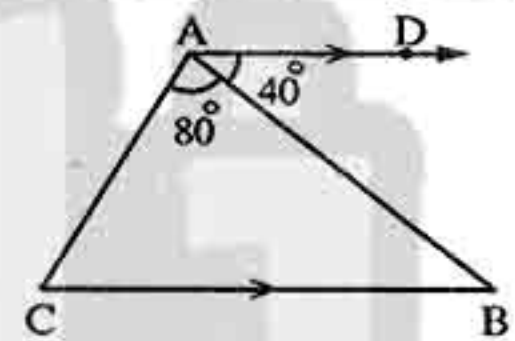


[5] [a] In the opposite figure :

$\triangle ABC$ , in which :  $\overline{AD} \parallel \overline{BC}$

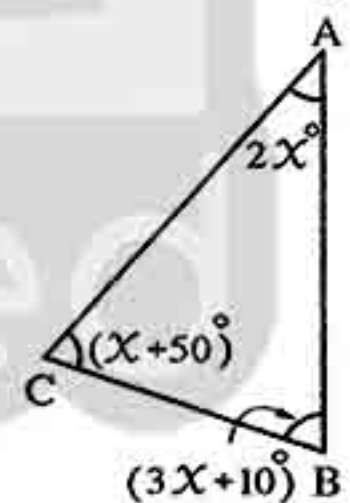
$m(\angle DAB) = 40^\circ$  and  $m(\angle BAC) = 80^\circ$

Prove that :  $AB > AC$



[b] In the opposite figure :

Show with proof, which sides are equal in length.



5

Giza Governorate

Omrania Directorate

El sadat Governmental Language School



Answer the following questions :

[1] Complete each of the following :

- ① The point of concurrence of medians of a triangle divides each median in ratio ..... : ..... from the vertex.
- ② The longest side in the right-angled triangle is .....
- ③ The straight line perpendicular to the midpoint of a line segment is called .....
- ④ The base angles of the isosceles triangle are .....
- ⑤ In  $\triangle ABC$ , if  $AB < BC < AC$ , then the greatest angle in measure is .....

2 Choose the correct answer from given ones :

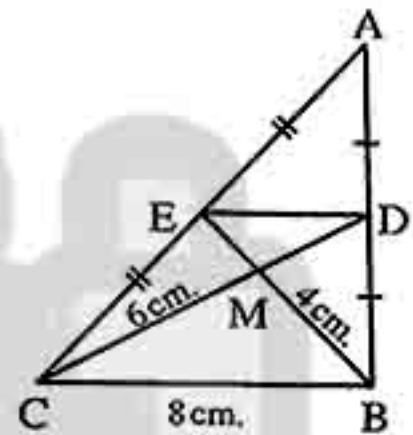
- ① The number of axes of symmetry in the scalene triangle is .....  
 (a) 1 (b) 2 (c) 3 (d) zero
- ② The measure of the exterior angle of an equilateral triangle is .....  
 (a)  $90^\circ$  (b)  $120^\circ$  (c)  $60^\circ$  (d)  $30^\circ$
- ③ The numbers 5 , 4 , ..... can be lengths of sides of a triangle.  
 (a) 8 (b) 9 (c) 10 (d) 12
- ④ In  $\triangle ABC$  ,  $AB = AC$  and  $m(\angle B) = 70^\circ$  , then  $m(\angle A) =$  .....  
 (a)  $140^\circ$  (b)  $70^\circ$  (c)  $40^\circ$  (d)  $110^\circ$
- ⑤  $\triangle ABC$  in which :  $m(\angle B) > m(\angle C)$  , then  $AC$  .....  $AB$   
 (a)  $>$  (b)  $<$  (c)  $=$  (d)  $\leq$

3 [a] In the opposite figure :

$ABC$  is a triangle in which  $D$  ,  $E$  are midpoints of  $\overline{AB}$  and  $\overline{AC}$  respectively ,

$MC = 6$  cm. ,  $MB = 4$  cm. and  $BC = 8$  cm.

Find : The perimeter of  $\triangle DME$



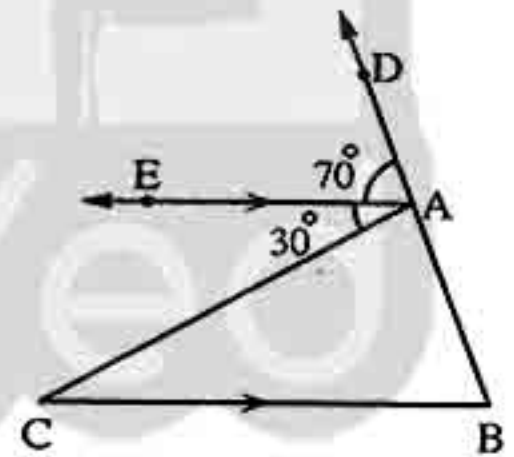
[b] In the opposite figure :

$\overline{AE} \parallel \overline{BC}$

$m(\angle DAE) = 70^\circ$

$m(\angle EAC) = 30^\circ$

Prove that :  $AC > AB$

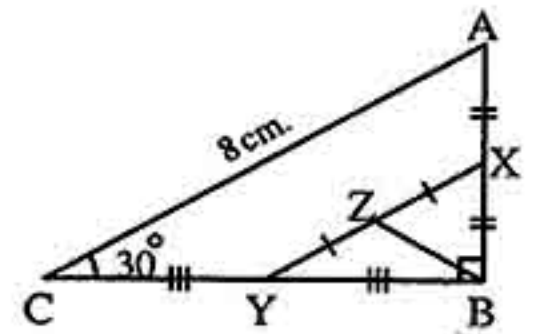


4 [a] In the opposite figure :

$ABC$  is a triangle in which :  $m(\angle ABC) = 90^\circ$

$m(\angle C) = 30^\circ$  ,  $X$  ,  $Y$  and  $Z$  are midpoints of  $\overline{AB}$  ,  $\overline{BC}$  and  $\overline{XY}$  respectively and  $AC = 8$  cm.

Find : The length of each of  $\overline{AB}$  ,  $\overline{XY}$  ,  $\overline{BZ}$

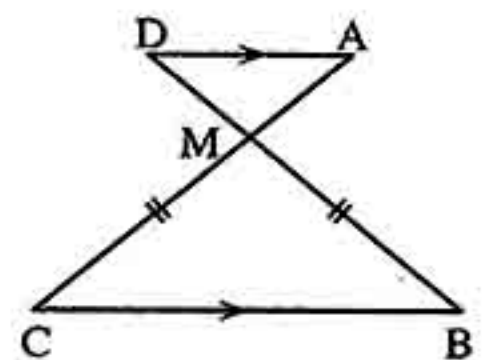


[b] In the opposite figure :

$\overline{AC} \cap \overline{BD} = \{M\}$

$MB = MC$  and  $\overline{AD} \parallel \overline{BC}$

Prove that :  $MA = MD$



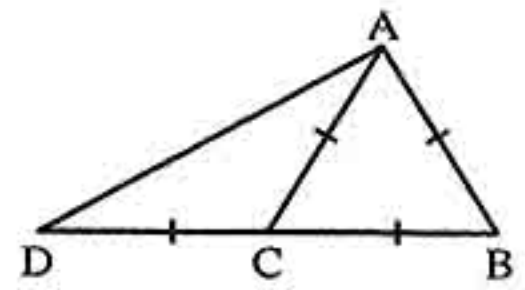
## Geometry

5 In the opposite figure :

ABC is an equilateral triangle

,  $D \in \overline{BC}$  such that  $BC = CD$

Prove that :  $\overline{BA} \perp \overline{AD}$



## Alexandria Governorate

Middle Educational Directorate  
Math's Supervision



Answer the following questions :

1 Choose the correct answer :

- ① The isosceles triangle has ..... of symmetry.  
(a) one axis      (b) two axes      (c) three axes      (d) zero axes
- ② In  $\triangle ABC$  , if  $m(\angle A) = 125^\circ$  , then the longest side of it is .....  
(a)  $\overline{AB}$       (b)  $\overline{AC}$       (c)  $\overline{BC}$       (d) its median
- ③ If XYZ is an isosceles triangle ,  $m(\angle Y) = 100^\circ$  , then  $m(\angle X) =$  .....  
(a)  $80^\circ$       (b)  $40^\circ$       (c)  $20^\circ$       (d)  $100^\circ$
- ④ In  $\triangle ABC$  if  $m(\angle A) = 30^\circ$  ,  $m(\angle B) = 90^\circ$  , then  $BC =$  .....  $AC$   
(a)  $\frac{1}{2}$       (b)  $\frac{2}{3}$       (c)  $\frac{1}{3}$       (d) 2
- ⑤ The measure of each exterior angle of equilateral triangle is .....  
(a)  $180^\circ$       (b)  $360^\circ$       (c)  $60^\circ$       (d)  $120^\circ$

2 Complete :

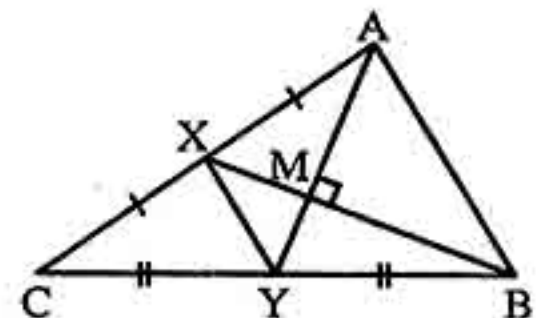
- ① The point of concurrence divides each median in the ratio ..... from the base.
- ② The longest side in the right angled triangle is .....
- ③ The sum of measures of the exterior angles of a square is .....  $^\circ$
- ④ The numbers 8 , 4 , ..... can be lengths of sides of an isosceles triangle.
- ⑤ The axis of symmetry of a line segment is the straight line which is .....

3 [a] In the opposite figure :

$\overline{AY}$  and  $\overline{BX}$  are two medians where  $\overline{AY} \perp \overline{BX}$

, if  $AY = 12$  cm. and  $XM = 5$  cm.

Find : The area of  $\triangle ABM$

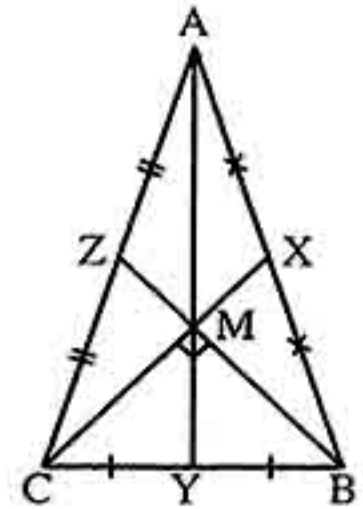


[b] ABC is a triangle in which :  $m(\angle A) = 6x^\circ$  ,  $m(\angle B) = (4x - 9)^\circ$  and  $m(\angle C) = 3(x - 2)^\circ$  Arrange the lengths of sides descendingly.

4 [a] In the opposite figure :

$\overline{BZ}$  and  $\overline{CX}$  are two medians of  $\triangle ABC$   
 $\overline{CX} \perp \overline{BZ}$

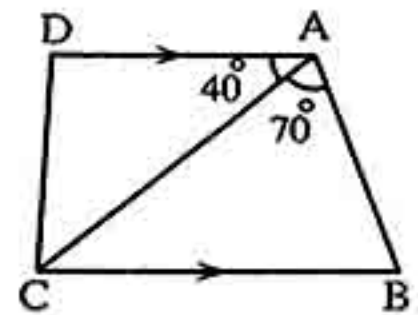
Prove that :  $AM = MC$



[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$  ,  $m(\angle DAC) = 40^\circ$   
 $m(\angle BAC) = 70^\circ$

Prove that :  $BC = AC$



5 [a] In the opposite figure :

$AB = AC$

Prove that :  $EC > EF$

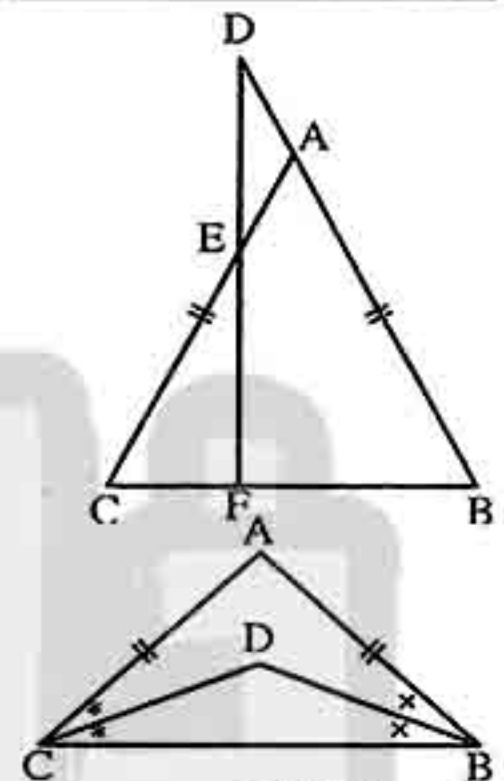
[b] In the opposite figure :

$AB = AC$

$\overline{BD}$  bisects  $\angle B$

$\overline{CD}$  bisects  $\angle C$

Prove that :  $BD = CD$



Alexandria Governorate

East Educational Zone  
 Mathematics Directing



Answer the following questions :

1 Complete the following :

- ① If ABCD is a parallelogram and  $m(\angle A) = 70^\circ$  , then  $m(\angle B) = \dots\dots\dots^\circ$
- ② The measure of the exterior angle in the equilateral triangle =  $\dots\dots\dots^\circ$
- ③ The length of the median from the vertex of the right angle in the right-angled triangle =  $\dots\dots\dots$
- ④ If  $AB = AC$  in  $\triangle ABC$  and  $m(\angle B) = 40^\circ$  , then  $m(\angle C) = \dots\dots\dots^\circ$
- ⑤ In  $\triangle XYZ$  , if  $XY < YZ < ZX$  , then the greatest angle in measure is  $\angle \dots\dots\dots$

2 Choose the correct answer from those given :

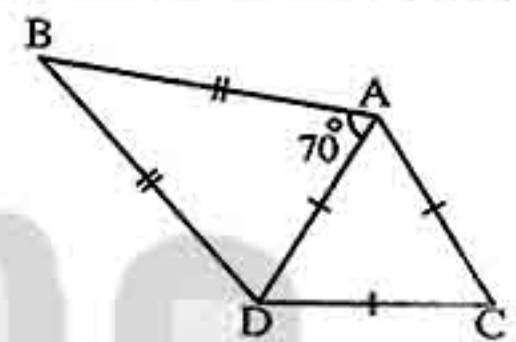
- ① The diagonals are perpendicular in  $\dots\dots\dots$ 
  - (a) square and rectangle.
  - (b) rectangle and rhombus.
  - (c) square and rhombus.
  - (d) parallelogram and rectangle.

## Geometry

- (2) The point of the intersection of the medians in triangle divides each median from the base into the ratio .....
- (a) 1 : 2                      (b) 2 : 1                      (c) 3 : 1                      (d) 2 : 3
- (3) The isosceles triangle has ..... axis of symmetry.
- (a) 0                      (b) 1                      (c) 2                      (d) 3
- (4) If the lengths of two sides in an isosceles triangle 3 cm. and 7 cm. , then the length of the third side = ..... cm.
- (a) 3                      (b) 4                      (c) 7                      (d) 10
- (5) In  $\triangle ABC$  , if  $m(\angle A) < m(\angle B)$  , then .....
- (a)  $AC < BC$                       (b)  $AC > BC$                       (c)  $AC = BC$                       (d)  $\overline{AC} \parallel \overline{BC}$

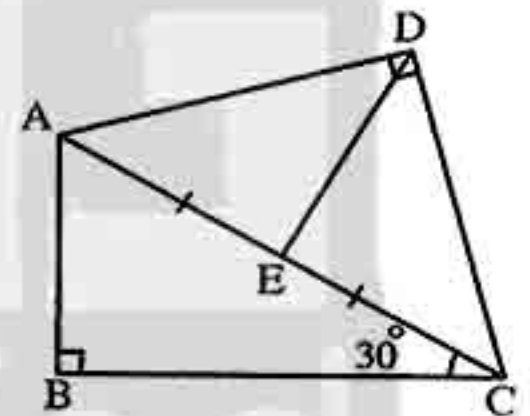
**3 [a] In the opposite figure :**

$AB = BD$  ,  $m(\angle BAD) = 70^\circ$   
 ,  $\triangle ADC$  is an equilateral triangle.  
**Find :**  $m(\angle BDC)$



**[b] In the opposite figure :**

$m(\angle ABC) = m(\angle ADC) = 90^\circ$   
 ,  $m(\angle ACB) = 30^\circ$   
 , E is the midpoint of  $\overline{AC}$   
**Prove that :**  $AB = ED$

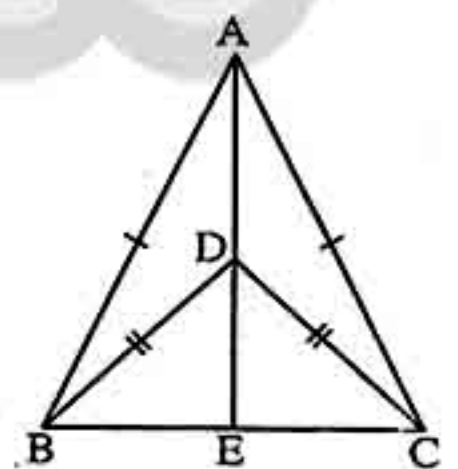


**4 [a] In the opposite figure :**

$AB = AC$  ,  $DB = DC$  ,  $D \in \overline{AE}$

**Prove that :**

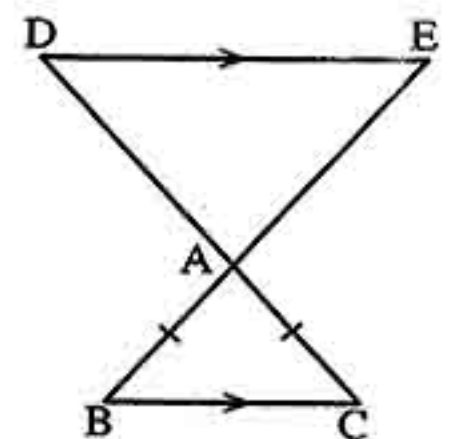
- ①  $\overline{AE} \perp \overline{BC}$   
 ②  $BE = EC$



**[b] In the opposite figure :**

$AB = AC$  and  $\overline{DE} \parallel \overline{BC}$

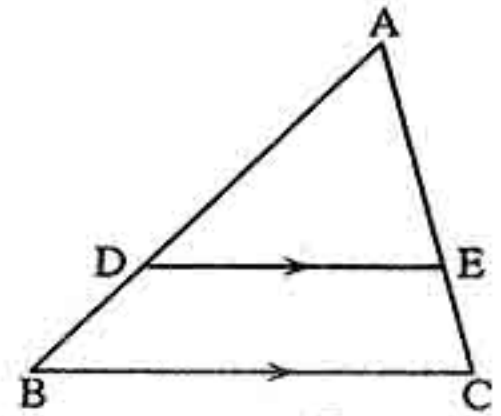
**Prove that :**  $AD = AE$



5 [a] In the opposite figure :

$$AB > AC, \overline{DE} \parallel \overline{BC}$$

Prove that :  $AD > AE$



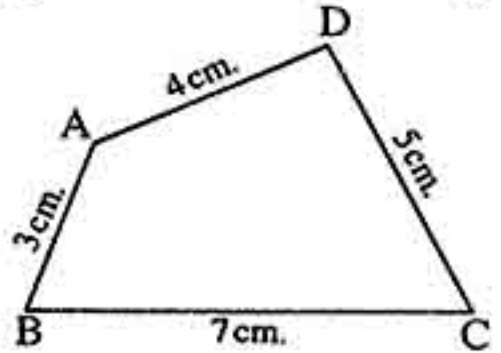
[b] In the opposite figure :

ABCD is a quadrilateral in which :

$$AB = 3 \text{ cm.}, BC = 7 \text{ cm.}$$

$$, CD = 5 \text{ cm. and } DA = 4 \text{ cm.}$$

Prove that :  $m(\angle BAD) > m(\angle BCD)$



## 8 El-Kalyoubia Governorate

Al-Obour Educational Zone  
Al-Resala Language School



Answer the following questions :

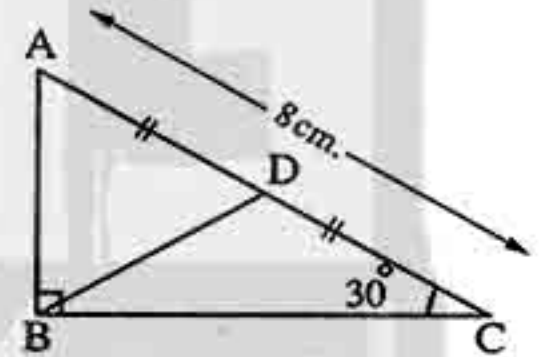
1 Complete the following :

(1) The bisector of the vertex angle of an isosceles triangle bisect the base and .....

(2) 3 cm. , 8 cm. and ..... cm. are three sides of an isosceles triangle.

(3) In the opposite figure :

The perimeter of  $\triangle ABD = \dots\dots\dots$  cm.



(4) The measure of the exterior angle of the equilateral triangle = .....°

(5) In  $\triangle ABC$  ,  $m(\angle A) = 100^\circ$  , then the longest side is .....

2 Choose the correct answer :

(1) In  $\triangle ABC$  , if  $m(\angle B) = 90^\circ$  and  $m(\angle A) = 30^\circ$  , then  $BC = \dots\dots\dots$

(a)  $\frac{1}{2} AC$

(b)  $2 AC$

(c)  $2 AB$

(d)  $\frac{1}{2} AB$

(2) If A  $\in$  the axis of symmetry of  $\overline{BC}$  , then  $AB = \dots\dots\dots$

(a) XY

(b) XZ

(c) AC

(d) BC

(3) The triangle whose side length are 2 cm. ,  $(X + 3)$  cm. and 5 cm. becomes an isosceles triangle when  $X = \dots\dots\dots$  cm.

(a) zero

(b) 1

(c) 2

(d) 3

(4) The number of axis of symmetry of the equilateral triangle = .....

(a) zero

(b) 1

(c) 2

(d) 3

## Geometry

(5) The sum of the lengths of any two sides in the triangle ..... the length of the third side.

(a) &lt;

(b)  $\leq$ (c)  $\geq$ 

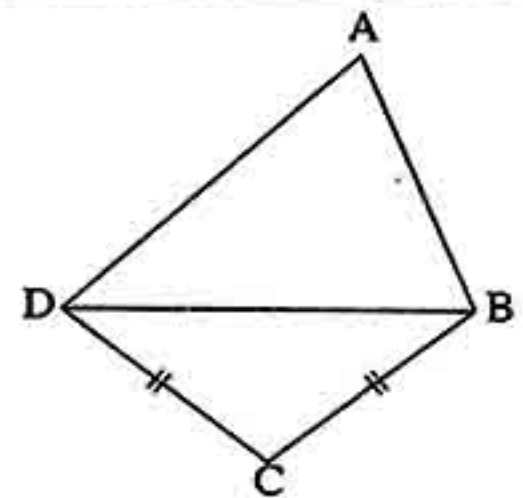
(d) &gt;

(e) =

3 [a] In the opposite figure :

ABCD is a quadrilateral in which  $AD > AB$  and  $BC = CD$

Prove that :  $m(\angle ABC) > m(\angle ADC)$



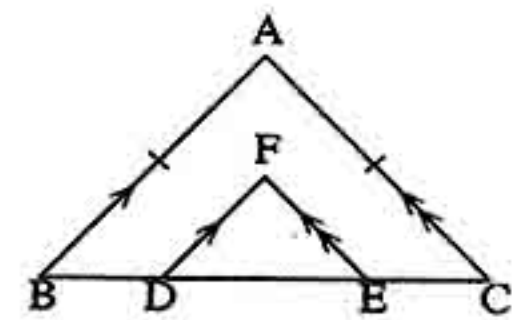
[b] In the opposite figure :

$D \in \overline{BC}$  ,  $E \in \overline{BC}$

,  $\overline{AB} \parallel \overline{FD}$  and  $\overline{AC} \parallel \overline{FE}$

, if  $AB = AC$

Prove that : FDE is an isosceles triangle.



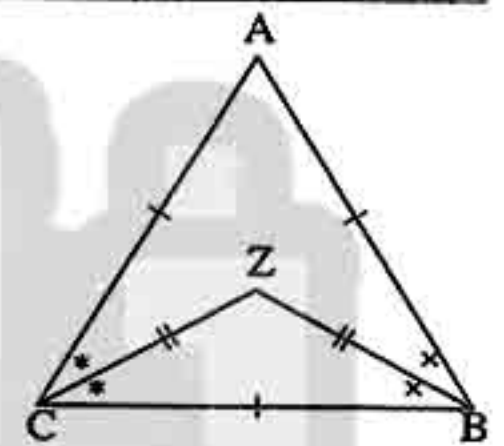
4 [a] In the opposite figure :

$\triangle ABC$  is an equilateral triangle

,  $\overline{BZ}$  bisects  $\angle B$

,  $\overline{CZ}$  bisects  $\angle C$

Find : The measure of the angles in triangle CZB



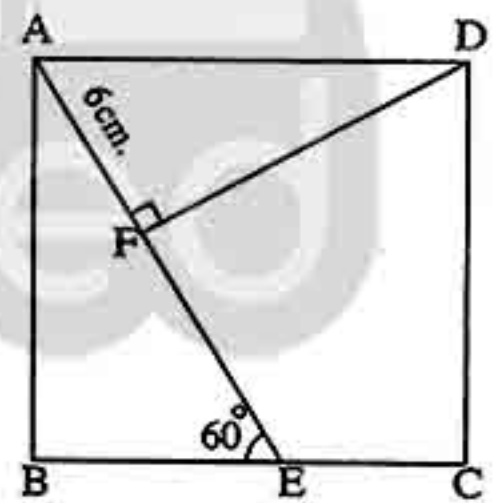
[b] In the opposite figure :

ABCD is a square

,  $m(\angle AEB) = 60^\circ$

,  $AF = 6$  cm. ,  $\overline{DF} \perp \overline{AE}$

Find : The perimeter of the square ABCD



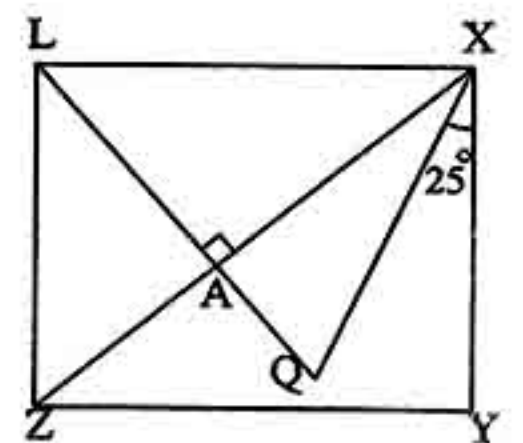
5 [a] In the opposite figure :

XYZL is a rectangle in which  $m(\angle YXQ) = 25^\circ$

,  $\overline{LQ} \perp \overline{XZ}$

,  $\overline{XQ}$  bisects angle YXZ

Prove that :  $LQ = XL$



[b] In  $\triangle ABC$  ,  $m(\angle A) = 40^\circ$  ,  $m(\angle B) = 80^\circ$

Arrange the length of the sides of the triangle ABC in a descending order.

9

El-Monofia Governorate

Maths Supervision



Answer the following questions :

## 1 Complete :

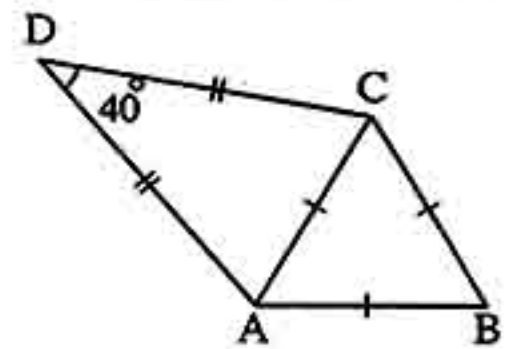
- ① The perpendicular which is drawn from vertex of an isosceles triangle to its base ..... and .....
- ② The length of the median from the vertex of the right-angled triangle equals .....
- ③ In  $\triangle ABC$  , if  $AB = AC$  and  $m(\angle A) = 80^\circ$  , then  $m(\angle B) = \dots\dots\dots^\circ$
- ④ The measure of the exterior angle of the equilateral triangle =  $\dots\dots\dots^\circ$
- ⑤ In  $\triangle DEF$  , if  $DE > DF$  , then  $m(\angle F) > \dots\dots\dots$

## 2 Choose the correct answer :

- ① If the length of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is ..... cm.  
(a) 4 (b) 8 (c) 3 (d) 12
- ② The number of axes of symmetry in the isosceles triangle = .....  
(a) 1 (b) 0 (c) 2 (d) 3
- ③  $\overline{AD}$  is a median in  $\triangle ABC$  , M is the point of intersection of the medians ,  $MD = 2$  cm. , then  $AD = \dots\dots\dots$  cm.  
(a) 2 (b) 4 (c) 6 (d) 8
- ④  $\triangle ABC$  :  $m(\angle B) = 125^\circ$  , then the longest side of it is .....  
(a)  $\overline{BC}$  (b)  $\overline{AC}$  (c)  $\overline{AB}$  (d) its median
- ⑤ In  $\triangle XYZ$  , if  $m(\angle Y) = 90^\circ$  ,  $m(\angle X) = 30^\circ$  and  $XZ = 20$  cm. , then  $ZY = \dots\dots\dots$  cm.  
(a) 12 (b) 6 (c) 24 (d) 10

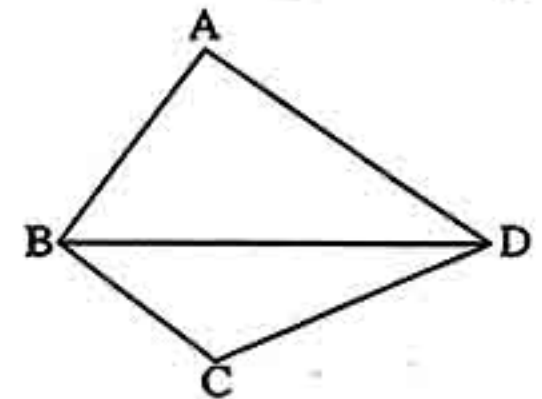
## 3 [a] In the opposite figure :

$m(\angle D) = 40^\circ$  ,  $DA = DC$   
and  $\triangle ABC$  is an equilateral triangle  
Find :  $m(\angle DCB)$



## [b] In the opposite figure :

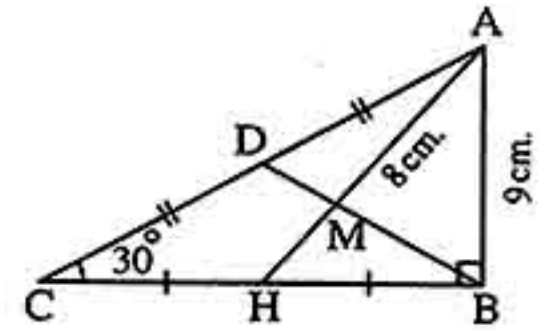
$AB < AD$  and  $BC < CD$   
Prove that :  $m(\angle ABC) > m(\angle ADC)$



## Geometry

**4 [a] In the opposite figure :**

D and H are the midpoints of  $\overline{AC}$  and  $\overline{CB}$  respectively  
 $m(\angle C) = 30^\circ$  ,  $m(\angle B) = 90^\circ$  ,  $AB = 9$  cm. ,  $AM = 8$  cm.  
**Find :** The length of each of  $\overline{BD}$  ,  $\overline{AH}$  and  $\overline{MD}$

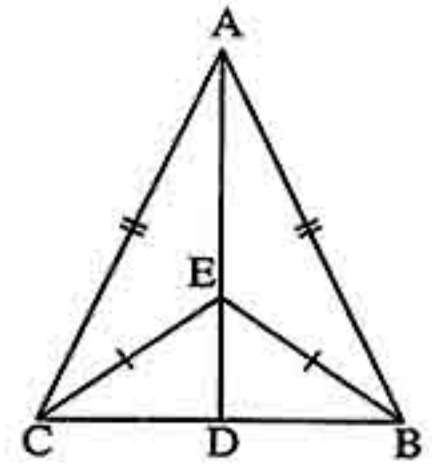


**[b] In the opposite figure :**

$AB = AC$  and  $EB = EC$

**Prove that :**

- ①  $\overrightarrow{AE}$  is the axis of  $\overline{BC}$
- ②  $BD = CB$

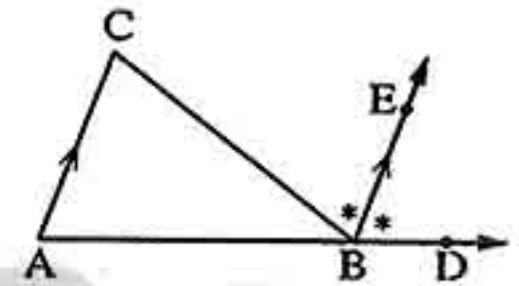


**5 [a] In the opposite figure :**

$D \in \overline{AB}$  ,  $\overline{BE}$  bisects  $\angle CBD$   
 and  $\overline{BE} \parallel \overline{AC}$

**Prove that :**

$\triangle ABC$  is an isosceles triangle,



**[b] In  $\triangle ABC$  :  $m(\angle A) = 40^\circ$  and  $m(\angle B) = 80^\circ$**

Arrange the lengths of the sides of the triangle ABC descendingly.

## 10 El-Dakahlia Governorate

Math's Supervision (L.E.S.)



**Answer the following questions :**

**1 Complete :**

- ① The number of axes of symmetry of isosceles triangle is .....
- ② The bisector of the vertex angle of the isosceles triangle .....
- ③ The medians of the triangle ..... at one point.
- ④ The longest side of the right-angled triangle is the .....
- ⑤ In  $\triangle ABC$  , if  $AB = AC$  and  $m(\angle C) = 40^\circ$  , then  $m(\angle A) = \dots\dots\dots^\circ$

**2 Choose the correct answer :**

- ① Isosceles triangle whose side lengths are 4 cm. ,  $(x + 3)$  cm. and 8 cm. , then  $x = \dots\dots\dots$   
 (a) 4 (b) 5 (c) 3 (d) 8
- ② In  $\triangle LMN$  , if  $m(\angle M) = 55^\circ$  and  $m(\angle N) = 80^\circ$  , then  $LM \dots\dots\dots MN$   
 (a) < (b) > (c) = (d) twice

- (3) The measure of the exterior angle of the equilateral triangle = .....°  
 (a) 30 (b) 60 (c) 90 (d) 120
- (4) The base angles of the isosceles triangle are .....  
 (a) alternating (b) corresponding (c) congruent (d) supplementary
- (5) If  $\overline{AD}$  is a median of  $\triangle ABC$  and M is the point of concurrence of the medians, then  $MD = \dots\dots\dots AD$   
 (a)  $\frac{1}{3}$  (b)  $\frac{2}{3}$  (c)  $\frac{1}{2}$  (d)  $\frac{1}{4}$

[3] [a] In the opposite figure :

$$m(\angle ABC) = m(\angle BDE) = 90^\circ$$

$$, m(\angle E) = 30^\circ$$

, D is the midpoint of  $\overline{AC}$

Prove that :  $AC = BE$

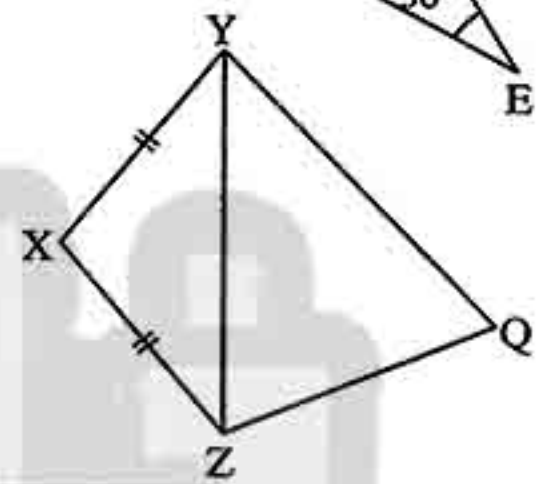
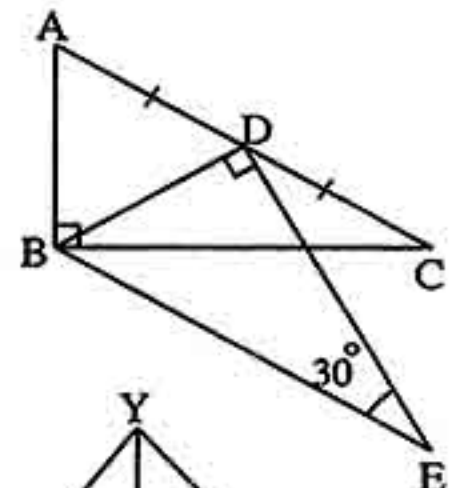
[b] In the opposite figure :

$$XY = XZ$$

$$, QY > QZ$$

Prove that :

$$m(\angle XZQ) > m(\angle XYQ)$$



[4] [a] In the opposite figure :

$$X \in \overline{BC}, \overline{BC} \parallel \overline{PQ}$$

$$, m(\angle P) = 110^\circ$$

$$, m(\angle A) = 40^\circ$$

Prove that :  $AB = AC$

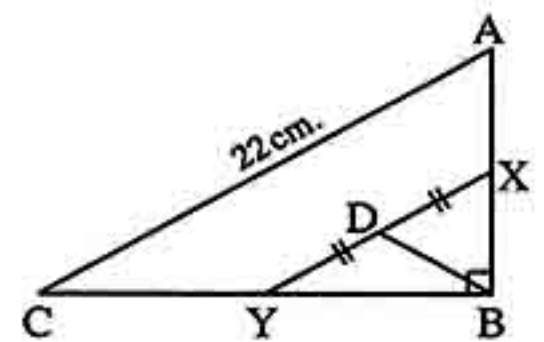
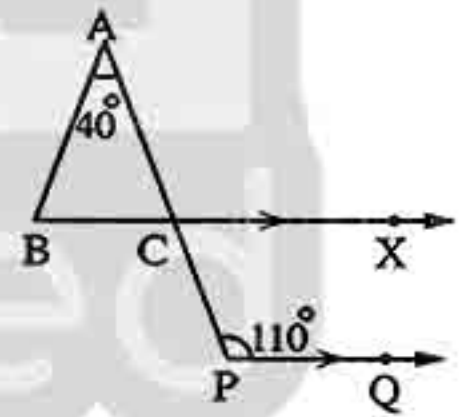
[b] In the opposite figure :

$$m(\angle ABC) = 90^\circ$$

X, Y, D are midpoints of  $\overline{AB}$ ,  $\overline{BC}$ ,  $\overline{XY}$  respectively.

$$AC = 22 \text{ cm.}$$

Find : BD

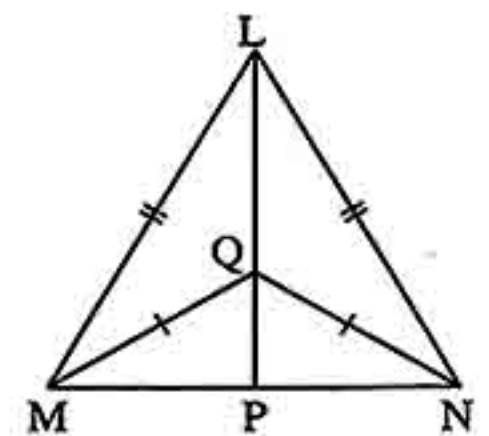


[5] [a] In the opposite figure :

$$LM = LN$$

$$, QM = QN$$

Prove that :  $MP = NP$



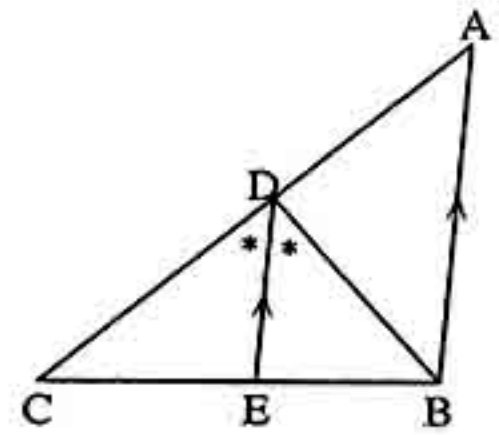
## Geometry

[b] In the opposite figure :

$\overline{DE}$  bisects  $\angle BDC$  and  $\overline{DE} \parallel \overline{AB}$

Prove that :

$AC > BC$



11

Ismailia Governorate

Directorate of Education  
Directorate of Math's



Answer the following questions :

1 Choose the correct answer :

(1) In the opposite figure :

If  $m(\angle A) = 90^\circ$ ,  $\overline{AD}$  is a median,  
M is the point of intersection of its medians  
and  $BC = 18$  cm., then  $MA = \dots\dots\dots$  cm.

- (a) 9 cm. (b) 3 cm. (c) 6 cm. (d) 18 cm.

(2) In  $\triangle XYZ$ , if  $m(\angle Y) < m(\angle Z)$ , then  $XY \dots\dots\dots XZ$

- (a) = (b) < (c) > (d) twice

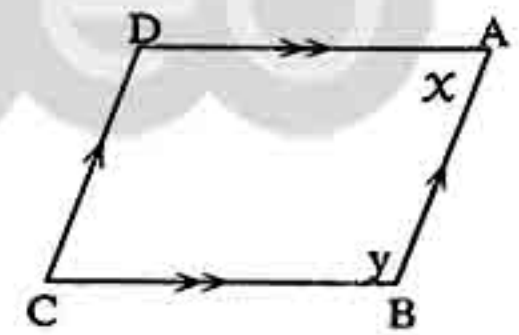
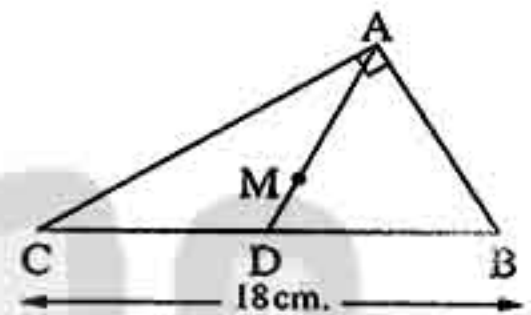
(3) If the measures of two angles of a triangle are  $65^\circ$  and  $50^\circ$ , then the triangle is .....

- (a) scalene (b) equilateral (c) isosceles (d) right angled

(4) If ABCD is a parallelogram,  $x : y = 1 : 2$

, then  $m(\angle C) = \dots\dots\dots^\circ$

- (a)  $60^\circ$  (b)  $120^\circ$   
(c)  $180^\circ$  (d)  $360^\circ$



(5) If 10 cm., 5 cm. and  $x$  cm. are side lengths of an isosceles triangle, then  $x = \dots\dots\dots$  cm.

- (a) 10 (b) 5 (c) 15 (d) 4

2 Complete :

(1) Number of axes of symmetry of an equilateral triangle = .....

(2) The perpendicular from the vertex angle of an isosceles triangle bisects each of .....  
and .....

(3) In  $\triangle ABC$ , if  $AB = 3$  cm. and  $BC = 5$  cm., then  $AC \in ] \dots\dots\dots , \dots\dots\dots [$

④ If ABCD is a square , then  $m(\angle ACB) = \dots\dots\dots^\circ$

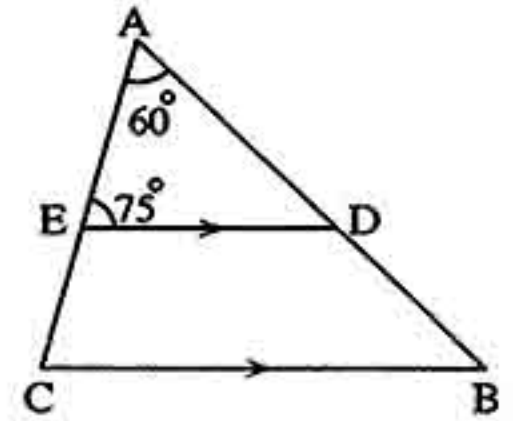
⑤ If  $A \in L$  where L is the axis of symmetry of  $\overline{BC}$  , then  $AB \dots\dots\dots AC$

3 [a] In the opposite figure :

$$\overline{ED} \parallel \overline{BC}$$

$$, m(\angle A) = 60^\circ \text{ and } m(\angle AED) = 75^\circ$$

Prove that :  $AB > AC$

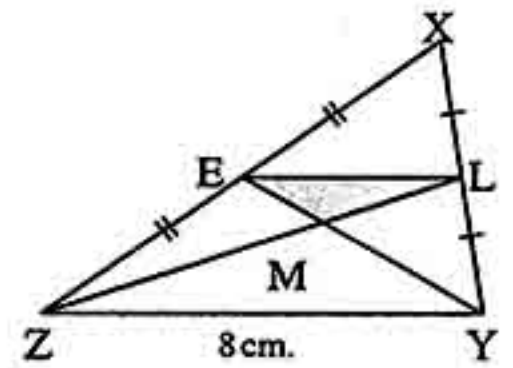


[b] In the opposite figure :

$\triangle XYZ$  in which : L and E are midpoints  
of  $\overline{XY}$  and  $\overline{XZ}$  respectively.

$$\overline{YE} \cap \overline{ZL} = \{M\} , YZ = 8 \text{ cm.} , YM = 4 \text{ cm. and } ZL = 9 \text{ cm.}$$

Find : The perimeter of  $\triangle EML$



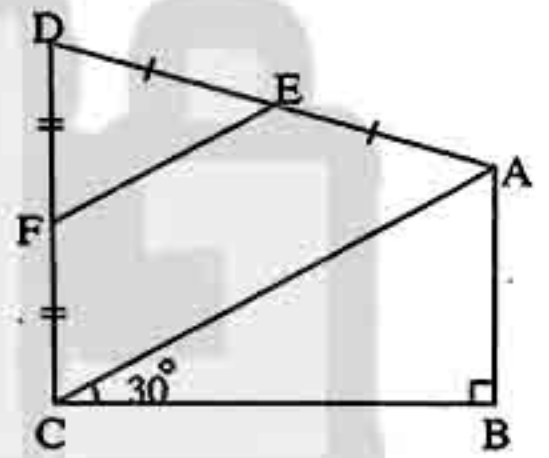
4 [a] In the opposite figure :

$$m(\angle B) = 90^\circ , m(\angle ACB) = 30^\circ$$

E is the midpoint of  $\overline{AD}$

and F is the midpoint of  $\overline{CD}$

Prove that :  $AB = EF$

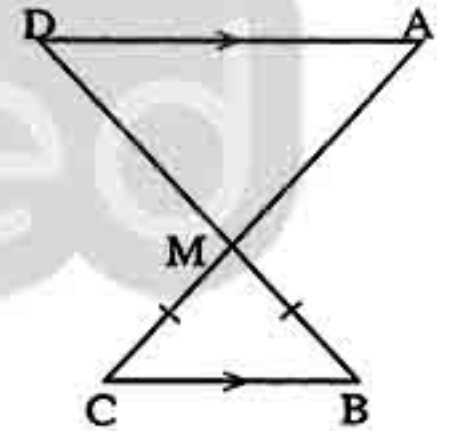


[b] In the opposite figure :

$$\text{If } \overline{AC} \cap \overline{BD} = \{M\}$$

$$, \overline{AD} \parallel \overline{BC} \text{ and } MB = MC$$

Prove that :  $\triangle MAD$  is an isosceles.



5 [a] In  $\triangle ABC$  : If  $m(\angle A) = 50^\circ$  and  $m(\angle B) = 85^\circ$

Find :  $m(\angle C)$  , then arrange the lengths of its sides ascendingly.

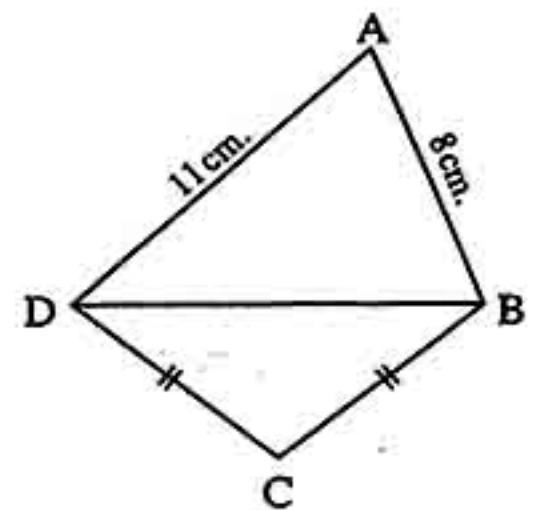
[b] In the opposite figure :

ABCD is a quadrilateral

$$, AD = 11 \text{ cm.} , AB = 8 \text{ cm.}$$

$$\text{and } CB = CD$$

Prove that :  $m(\angle ABC) > m(\angle ADC)$



## Geometry

12

Damietta Governorate

Damietta Inspection of Mathematic  
Official Language Schools

Answer the following questions :

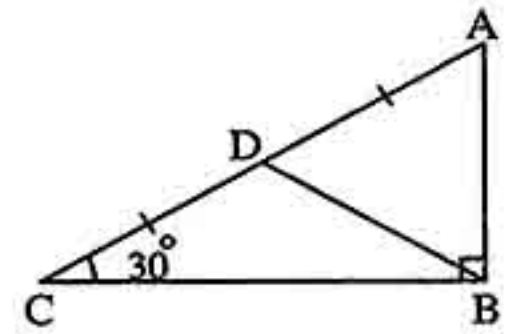
1 Choose the correct answer :

- (1) In  $\triangle ABC$  :  $m(\angle B) = 80^\circ$  and  $m(\angle C) = 50^\circ$  , then  $AB = \dots\dots\dots$   
 (a) BC (b) AC (c)  $2AC$  (d)  $\frac{1}{2}BC$
- (2) The lengths 6 cm. , 7 cm. and  $\dots\dots\dots$  can be lengths of the sides of a triangle.  
 (a) 15 cm. (b) 13 cm. (c) 18 cm. (d) 11 cm.
- (3) In  $\triangle ABC$  , if  $m(\angle A) = 30^\circ$  and  $m(\angle B) = 90^\circ$  , then  $AC = \dots\dots\dots$   
 (a)  $\frac{1}{2}BC$  (b)  $2BC$  (c)  $2AB$  (d)  $BC$
- (4) The point of intersection of the medians of the triangle divides each of them with ratio  $\dots\dots\dots$  from the vertex.  
 (a) 1 : 2 (b) 3 : 1 (c) 2 : 1 (d) 1 : 3
- (5) In  $\triangle ABC$  ,  $m(\angle A) = 50^\circ$  and  $m(\angle B) = 100^\circ$  then  $\dots\dots\dots$   
 (a)  $AB > AC$  (b)  $AC < AB$  (c)  $BC < AC$  (d)  $AB = BC$

2 Complete :

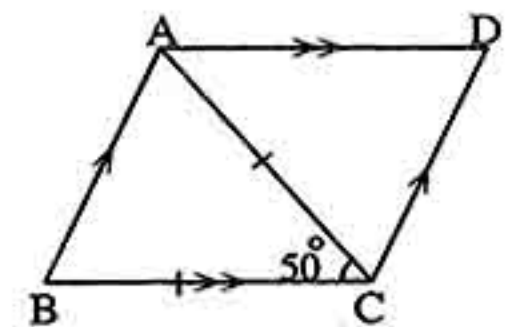
- (1) The measure of exterior angle of the equilateral triangle =  $\dots\dots\dots^\circ$
- (2) If  $\triangle ABC \equiv \triangle XYZ$  , then  $\angle A \equiv \dots\dots\dots$
- (3) The longest side in a right-angled triangle is  $\dots\dots\dots$
- (4) If  $\overleftrightarrow{XY}$  is an axis of symmetry of  $\overline{AB}$  ,  $D \in \overleftrightarrow{XY}$  , then  $AD = \dots\dots\dots$
- (5) Square with side length 5 cm. , then its area =  $\dots\dots\dots \text{cm}^2$

3 [a] In the opposite figure :

D is a midpoint of  $\overline{AC}$  $m(\angle B) = 90^\circ$  ,  $m(\angle ACB) = 30^\circ$ Prove that :  $\triangle ABD$  is an equilateral triangle

[b] In the opposite figure :

ABCD is a parallelogram

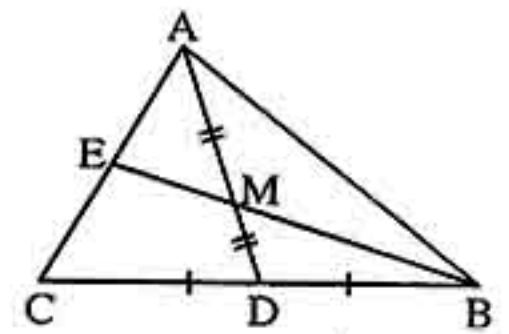
 $CA = CB$  and  $m(\angle ACB) = 50^\circ$ Find with proof :  $m(\angle D)$ 

4 [a] In the opposite figure :

E and D are the midpoints of  $\overline{AC}$  and  $\overline{CB}$  respectively

If  $AD = 4.5$  cm and  $BM = 4$  cm.

Find : The length of each of  $\overline{MD}$  and  $\overline{BE}$



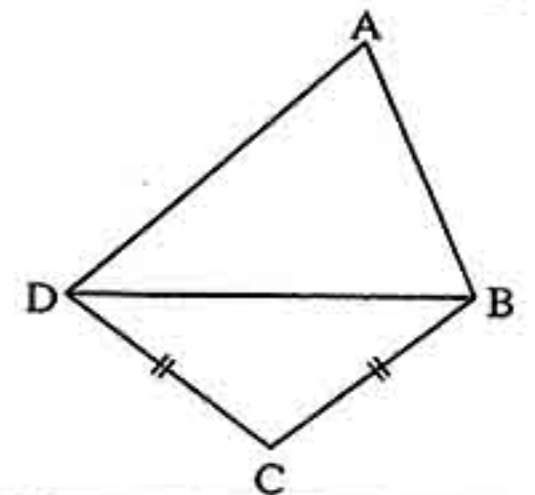
[b] In the opposite figure :

ABCD is a quadrilateral in which :  $AD > AB$

and  $BC = CD$

Prove that :

$m(\angle ABC) > m(\angle ADC)$



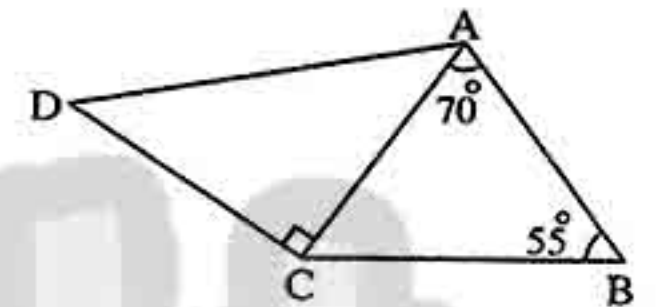
5 [a] ABC is a triangle in which :  $m(\angle A) = 40^\circ$  and  $m(\angle B) = 75^\circ$   
Arrange the lengths of sides of  $\triangle ABC$  in ascending order.

[b] In the opposite figure :

$m(\angle BAC) = 70^\circ$  ,  $m(\angle B) = 55^\circ$

and  $m(\angle ACD) = 90^\circ$

Prove that :  $AD > AB$



### 13 El-Behira Governorate

Maths Inspection



Answer the following questions :

1 Complete the following :

- (1) If the length of two sides of isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is .....
- (2) The number of axis of symmetry of scalene triangle is .....
- (3) The length of the median of the right-angled triangle from the vertex of right angle equals ..... the length of the hypotenuse.
- (4) The base angles of the isosceles triangle are ..... in measure.
- (5) In  $\triangle ABC$  , if  $m(\angle A) = 40^\circ$  and  $m(\angle B) = 60^\circ$  , then the longest side is .....

2 Choose the correct answer :

- (1) If A lies on the line of symmetry of  $\overline{BC}$  then  $AB$  .....  $AC$   
(a)  $>$  (b)  $<$  (c)  $=$  (d)  $//$
- (2) The measure of the exterior angle of the equilateral triangle = .....  
(a)  $90^\circ$  (b)  $60^\circ$  (c)  $120^\circ$  (d)  $180^\circ$
- (3) In  $\triangle ABC$  , if  $BC > AC$  , then  $m(\angle A)$  .....  $m(\angle B)$   
(a)  $>$  (b)  $<$  (c)  $=$  (d)  $\geq$

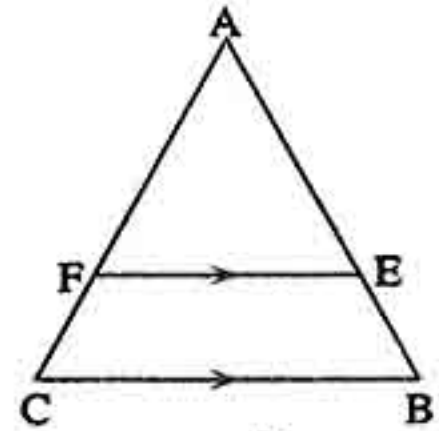
## Geometry

- (4) If  $\triangle ABC$  is a right-angled triangle at B and  $m(\angle C) = 30^\circ$ , then  $AB = \dots\dots\dots AC$   
 (a) 2 (b)  $\frac{1}{2}$  (c)  $\frac{1}{3}$  (d) 3
- (5) The sum of lengths of two sides of a triangle is  $\dots\dots\dots$  the length of the third side.  
 (a) greater than (b) less than (c) equal (d) greater than or equal

3 [a] In the opposite figure :

$$AB = AC, \overline{EF} \parallel \overline{CB}$$

Prove that :  $AE = AF$



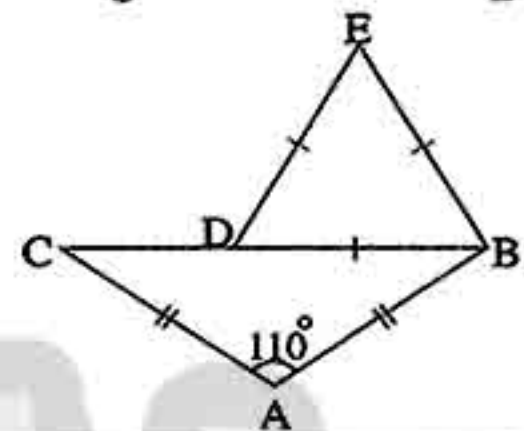
[b] In the opposite figure :

$$EB = ED = DB$$

$$, AB = AC$$

$$\text{and } m(\angle A) = 110^\circ$$

Find :  $m(\angle ABE)$

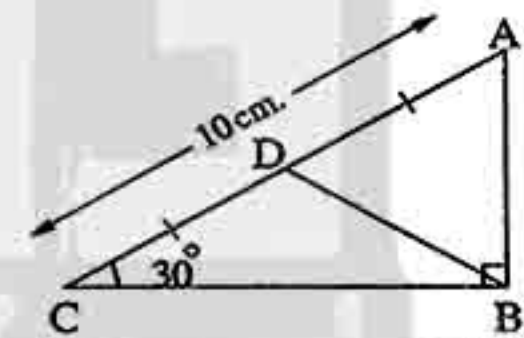


- 4 [a] In  $\triangle ABC$ , if  $m(\angle A) = 50^\circ$  and  $m(\angle B) = 60^\circ$   
 Arrange the side lengths of  $\triangle ABC$  ascendingly.

[b] In the opposite figure :

$$m(\angle ABC) = 90^\circ, m(\angle C) = 30^\circ, AD = DC \text{ and } AC = 10 \text{ cm.}$$

Find : The perimeter of  $\triangle ABD$



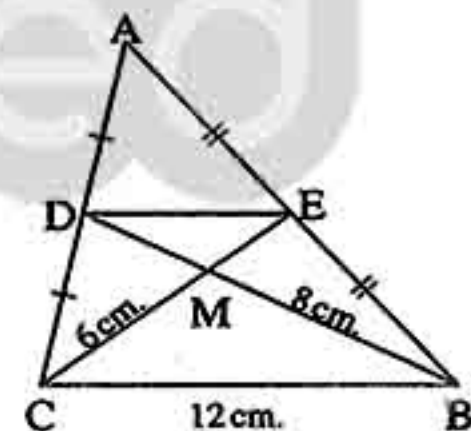
5 In the opposite figure :

$$AE = EB, AD = DC$$

$$, MB = 8 \text{ cm.}, MC = 6 \text{ cm.}$$

$$\text{and } BC = 12$$

Find : The perimeter of  $\triangle MED$



## 14 El-Minia Governorate

El-Minia Directorate of Education  
 Governmental languages schools



Answer the following questions :

1 Complete the following : (Calculator is allowed)

- (1) The number of axes of symmetry in the equilateral triangle equals  $\dots\dots\dots$
- (2) If the length of two sides in a triangle are 2 cm. and 7 cm.  
 , then  $\dots\dots\dots < \text{length of third side} < \dots\dots\dots$

- (3) The length of median which drawn from the vertex of the right-angle in the right-angled triangle equals .....
- (4) If the measure of an angle in an isosceles triangle is  $60^\circ$ , then the triangle is .....
- (5) The length of the side opposite to the angle of measure  $30^\circ$  in the right-angled triangle equals .....

**2 Choose the correct answer :**

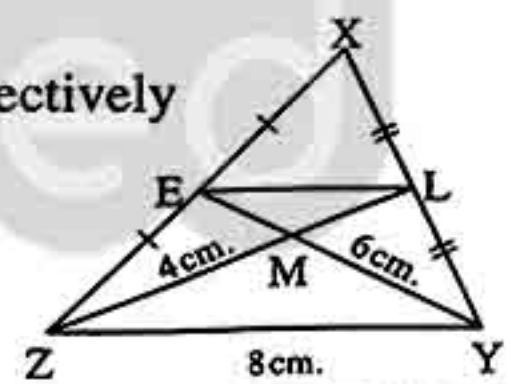
- (1) XYZ is a triangle in which :  $m(\angle Z) = 70^\circ$  and  $m(\angle Y) = 60^\circ$  then  $YZ$  .....  $XY$   
 (a)  $>$  (b)  $<$  (c)  $=$  (d) twice
- (2) The numbers which can be lengths of sides of triangle are .....  
 (a) 0 , 3 , 5 (b) 3 , 3 , 5 (c) 3 , 3 , 6 (d) 3 , 3 , 7
- (3) The measure of the exterior angle of the equilateral triangle equals ..... $^\circ$   
 (a) 60 (b) 30 (c) 100 (d) 120
- (4) If the length of two sides in an isosceles triangle are 8 cm. and 4 cm. , then the length of the third side is ..... cm.  
 (a) 4 (b) 8 (c) 3 (d) 12
- (5) If  $\triangle ABC$  is a right-angled at B ,  $AB = 6$  cm. and  $BC = 8$  cm. , then the length of the median drawn from B is ..... cm.  
 (a) 10 (b) 8 (c) 6 (d) 5

- 3 [a]** In  $\triangle ABC$  ,  $AB = 7$  cm. ,  $BC = 5$  cm. and  $AC = 6$  cm.  
 Arrange its angles measures ascendingly.

**[b] In the opposite figure :**

$\triangle XYZ$  in which : L and E are the midpoints of  $\overline{XY}$  and  $\overline{XZ}$  respectively  
 $\overline{YE} \cap \overline{ZL} = \{M\}$   
 $YZ = 8$  cm. ,  $YM = 6$  cm. ,  $ZM = 4$  cm.

**Find :** The perimeter of  $\triangle MLE$



**4 [a] In the opposite figure :**

$AB < AD$  ,  $BC < CD$

**Prove that :**  $m(\angle ABC) > m(\angle ADC)$

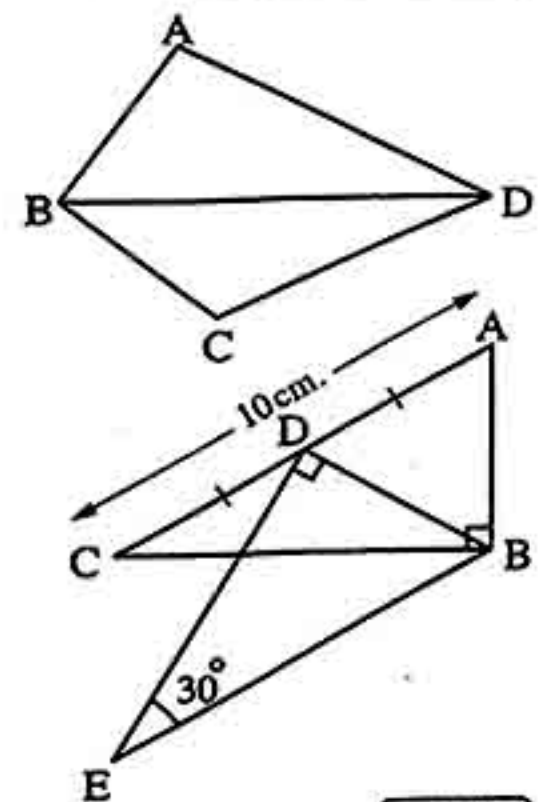
**[b] In the opposite figure :**

$m(\angle ABC) = m(\angle BDE) = 90^\circ$

D is the midpoint of  $\overline{AC}$

$m(\angle E) = 30^\circ$  and  $AC = 10$  cm.

**Find :** The length of  $\overline{BE}$



## Geometry

5 [a] In the opposite figure :

$AB = AC$  ,  $\overrightarrow{BD}$  bisects  $\angle B$   
and  $\overrightarrow{CD}$  bisects  $\angle C$

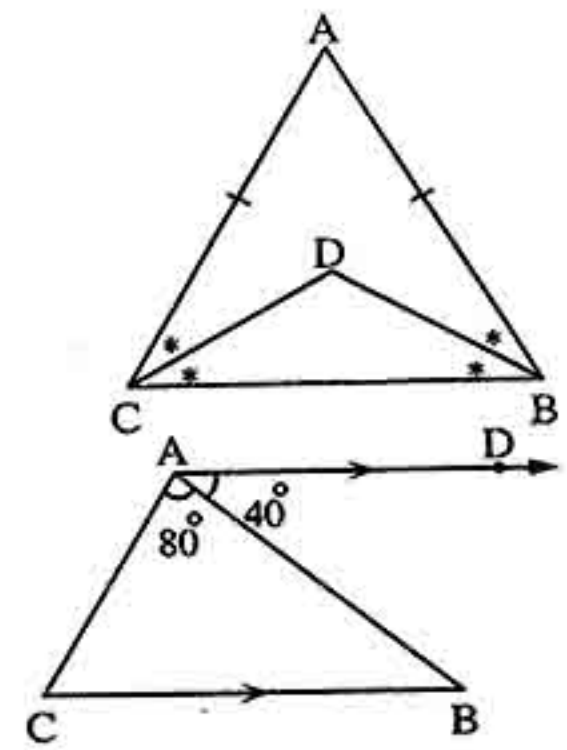
Prove that :  $\triangle DBC$  is an isosceles triangle.

[b] In the opposite figure :

$\triangle ABC$  in which :  $\overrightarrow{AD} \parallel \overrightarrow{CB}$

,  $m(\angle DAB) = 40^\circ$  and  $m(\angle BAC) = 80^\circ$

Prove that :  $AB > AC$



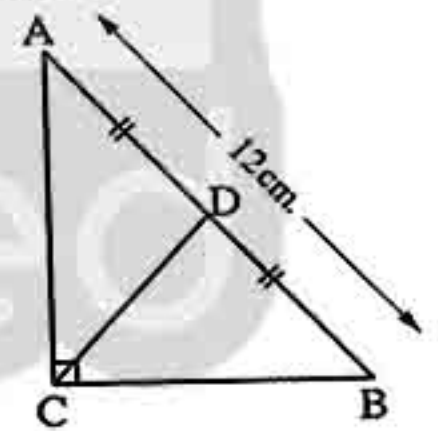
## 15 South Sinai Governorate

Educational Directorate  
Tur Sinai Educational Zone

Answer the following questions :

1 Choose the correct answer from given answers :

- (1) In isosceles triangle the base angles are .....  
(a) complementary. (b) supplementary. (c) adjacent. (d) congruent.
- (2) The sum of the lengths of the two sides of the triangle ..... the length of the third side.  
(a) double (b) equals (c) greater than (d) less than
- (3) In the opposite figure :  
If  $AB = 12$  cm.  
, then  $CD =$  ..... cm.  
(a) 12 (b) 9  
(c) 6 (d) 3
- (4) The triangle that has one axis of symmetry is ..... triangle.  
(a) an equilateral (b) an isosceles (c) a scalene (d) a right-angled
- (5) The ..... is a parallelogram where one of its angles is right angle.  
(a) a rectangle (b) a square (c) a rhombus (d) a trapezium



2 Complete the following :

- (1) The point that divides the median of the triangle in the ratio 1 : 2 from the base is the point of intersection of .....
- (2) In  $\triangle ABC$  , if  $AB > BC$  , then  $m(\angle A) < m(\angle \dots)$
- (3) The sum of the measures of accumulative angles at point is .....°

- (4) ABC is a triangle in which :  $m(\angle B) = 130^\circ$  , then the longest side of its sides is .....
- (5) In the right-angled triangle , the length of the side that opposite to the angle of measure  $30^\circ = \dots\dots\dots$  the length of the hypotenuse.

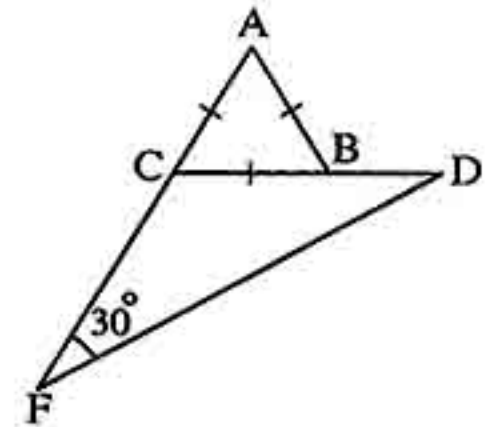
**3 [a] In the opposite figure :**

ABC is an equilateral triangle

,  $F \in \overrightarrow{AC}$  ,  $D \in \overrightarrow{CB}$

,  $m(\angle DFC) = 30^\circ$

**Prove that :**  $\triangle DCF$  is an isosceles triangle.



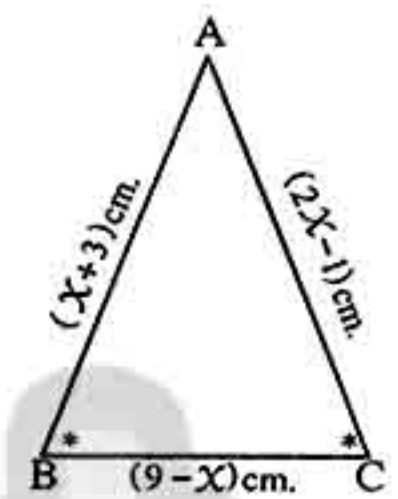
**[b] In the opposite figure :**

ABC is a triangle in which :

$m(\angle B) = m(\angle C)$

**Find :**

The perimeter of  $\triangle ABC$

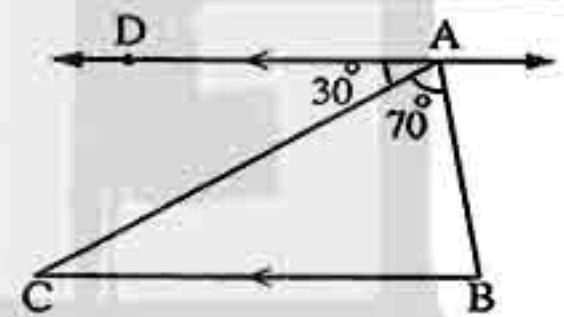


**4 [a] In the opposite figure :**

$\overrightarrow{AD} \parallel \overrightarrow{BC}$  ,  $m(\angle BAC) = 70^\circ$

and  $m(\angle DAC) = 30^\circ$

**Prove that :**  $AC > BC$



- [b]** ABC is a triangle in which :  $AB = 7$  cm. ,  $BC = 5$  cm. and  $AC = 6$  cm.  
Arrange the measures of its angles in an ascending order.

**5 [a] In the opposite figure :**

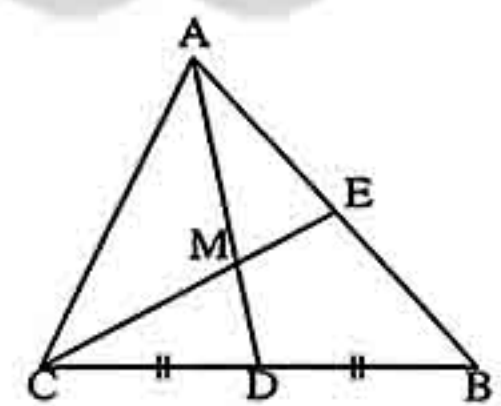
ABC is a triangle

, D is the midpoint of  $\overline{BC}$  ,  $M \in \overline{AD}$

, where  $AM = 2 MD$

Draw  $\overline{CM}$  cuts  $\overline{AB}$  at E , if  $EC = 12$  cm.

, **find :** The length of  $\overline{EM}$



**[b] In the opposite figure :**

$BA = BC$

and  $\overline{BE}$  bisects  $\angle CBD$

**Prove that :**  $\overline{BE} \parallel \overline{AC}$

